University of Minnesota Twin Cities
2020-22 Undergraduate Courses

This document serves as an official historical record for a specific period in time. The information found is subject to change without notice. Colleges and departments make changes to their degree requirements and course descriptions frequently. More information is available at catalogs.umn.edu.

For current information, refer to:

- Program search: z.umn.edu/publicprogramsearch
- Course search: z.umn.edu/publiccoursecatalog
- University policies: policy.umn.edu

University of Minnesota Twin Cities
3 Morrill Hall, 100 Church St. S.E., Minneapolis MN 55455

Acad, Prof, & Personal Success (APPS)

APPS 1620. Current Topics: Strategies for Student Success. (; 1 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Spring)
For topics see class schedule.

Academic Health Center Shared (AHS)

AHS 1101. Orientation to Health Careers. (; 1 cr. ; Student Option No Audit; Every Fall & Spring)
Interest/personality assessment, health-related academic majors/professions, professionalism/ethics in health care. Students integrate information about self and about careers to move toward major/career choice.

AHS 1102. Orientation to Health Careers. (; 1 cr. ; Student Option No Audit; Every Fall & Spring)
This one-credit, online course is for students who are exploring health careers. Students will have the opportunity to assess their work values and interests, to learn about the academic and experiential requirements of University health professional programs, and to develop a career action plan.

AHS 1104. Experiences in Health. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Non-physician roles in health care from traditional to alternative and complementary roles. Minimum 35 hour volunteer experience with instructor approval. prereq: AHS 1101 or AHS 1102 or AHS 1600

AHS 1600. The Future Physician I: Medicine in the 21st Century. (1 cr. ; A-F only; Every Fall)
Multi-disciplinary field of medicine. Challenges shaping work of health professionals in health care field. History of medicine/health. Global health issues/health care. Roles of physicians, team members, patient.

AHS 1601. The Future Physician II. (; 1 cr. ; Student Option; Every Fall & Spring)
A career in medicine. Life/work of physicians, what it takes to be successful. Issues/trends including Institute of Medicine core competencies, medical ethics, concept of health teams, multiculturalism, global issues, disparities in accessing medical care.

AHS 1602. The Future Physician III: Experiences in Health. (; 2 cr. ; Student Option; Every Fall & Spring)
Online course for students confident in decision to prepare for medical school. Exercises designed to learn about/prepare for career in medicine. Community-based volunteer experience (35 hours) in setting that employs physicians/serves patients. prereq: [1600 or 1601], instr consent

AHS 1901. Health in the Tropics: Humans, Animals, and Ecosystems. (GP; 3 cr. ; A-F only; Every Spring)
The future health of our world requires a generation of creative, motivated, strategic, and expansive thinkers prepared to collaborate across disciplines and sectors to proactively protect the health of human and animal populations and the environment in which they live. Through exploring the connections between culture and human, animal, and ecosystem health in Panama, this freshman seminar abroad will expose students considering health profession careers to the variety of health professions involved in the One Health approach. Students will learn about the roles of various health professions and the challenges and opportunities for the various professions to work together on complex health challenges. Panama is an ideal location to incorporate cultural contexts with an understanding of the intersection between animal health, human health, and the environment by exploring the history of the Panama Canal and the tropical rainforest and reef ecosystems of Bocas del Toro which are home to indigenous populations, host vast biodioversity, and are visited by increasing numbers of tourists. During the first half of the spring semester at UMN, students will learn about the challenges and opportunities of human, animal, and ecosystem health (One Health) in Panama while comparing and contrasting it to the US and/or Minnesota. Students will be placed in teams who will be tasked to focus on a perspective of human, animal, or ecosystem health (One Health) throughout the semester. Students will also learn very basic Spanish words and phrases in preparation for time in Panama. Through taking and learning about the Intercultural Development Inventory, interactions with UMN GPSA Culture Corps students, and cultural development and reflection activities including Observe, Describe, Interpret, and Evaluate (ODIE), students will learn more about their own cultures while preparing to openly experience cultures in Panama. During spring break week, students will have the opportunity to apply the knowledge learned in the early Spring semester to observations and experiences in Panama. Site visits and discussions in Panama City will explore the culture of Panama, the history of the building of the Panama Canal and its impact on local, regional, and global health. Site visits and discussions in Bocas del Toro will explore human, animal, and ecosystem health in tropical rainforest and reef ecosystems including the culture, livelihood, and health of indigenous populations, conservation efforts, and ecotourism. The teams will ask questions during site visits from their assigned One Health perspective in preparation for their final photo poster project on One Health in Panama. Upon returning to UMN, the students will participate in re-entry activities, present their photo posters reflecting their team? s understanding of One Health in Panama from their assigned perspective, and have a final class debrief. Students will complete reflective journal entries throughout the semester and a final person reflection on One Health in Panama compared and contrasted to Minnesota/USA.

AHS 2300. Orientation to Clinical Research. (1 cr. ; A-F only; Every Fall & Spring)
Seminar. Field of clinical research. Ethical conduct/professionalism. Research methods pertinent to dentistry, medicine, public health, pharmacy, nursing. Field experience.

AHS 2400. Writing a Personal Statement. (1 cr. ; S-N only; Every Fall & Spring)
Develop competitive personal statement. Designed for students applying to health professional program in coming year.

AHS 2707. Global Health Challenges for Future Health Professionals. (; 2 cr. [max 4 cr.] ; A-F only; Periodic Fall, Spring & Summer)
This is a two-credit course designed for students who have an interest in learning more about global health careers, including the issues and the challenges and opportunities health professionals face as they work in global health. Every year this course is designed a little differently ? to respond to current events in global health. We have focused on topics including: pandemic flu, natural and man made disasters, social determinants of health, immigration and other topics.

AHS 3001. Health and Medicine in India in a Social and Cultural Context. (GP; 3 cr. ; A-F only; Every Spring)
Students are required to attend two pre-orientations, travel to India on the global seminar, and complete a project and presentation upon their return to the United States. prereq: instr consent

AHS 3002. Global Health in Thailand - Humans, Elephants, and Disease. (GP; 3 cr. ; A-F only; Every Spring)
Global Health in Thailand is a Global Seminar that travels to Chiang Mai, Thailand to examine the relationship between human, animal, and environmental health through the One Health approach. The course travels to Thailand over winter break and then meets for the first half of Spring semester. For more information, see the Learning Abroad Center website.

AHS 3101. The New Health Professions Team. (2 cr. ; Student Option; Every Spring)
The future health of our world population requires a generation of creative, motivated, strategic, expansive thinkers prepared to collaborate across disciplines and sectors to preempt and address the causes of poor health in patients and populations. The knowledge and skills needed to be successful come from all disciplines, not just the health professions, and require us to learn about and work with each other. In addition to sharing discipline specific knowledge, the key is to translate concepts and language so interprofessional teams can identify, dissect, define, and solve health-related grand challenges together. This course will help students grow in their understanding and capacity to work in interdisciplinary teams in a multitude of settings, from serving patients to serving communities. prereq: This course is recommended for junior and senior undergraduate students pursuing a health career.

AHS 4393. Directed Study. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Students participating in a directed study will carry out an independent project under

supervision of an instructor from the Pre-Health Student Resource Center. Registering for directed study allows you to get credit for conducting research or independent studies that match with your interest as a future health professional. You should discuss your interest with an instructor prior to completing your directed study contract http://z.umn.edu/directed_activity prereq: instructor consent

AHS 5100. HIV Drug Discovery. (3 cr. ; A-F only; Every Fall)
Basic virology, medicinal chemistry, pharmacology of HIV chemotherapy. General process of drug discovery, including target selection/validation, in vitro assay development, computer-aided inhibitor design strategies/drug-like properties. Major classes of FDA-approved anti-HIV drugs. Intellectual properties, FDA regulatory issues, successful antiviral discovery story. prereq: One year of organic chemistry, [CHEM 2301 and 2302] or equivalent, [one semester of biochemistry], [BIOC 3021 or equivalent]

Accounting (ACCT)

ACCT 1911. The Language of Business. (; 3 cr. ; A-F only; Every Fall & Spring)
Have you ever wondered why Tesla?s stock price tripled in a 3-month time period? Why did Toys R Us go bankrupt? Why does Apple hold on to $200 billion of cash? Why is Snapchat still not profitable yet? All of these questions can be answered by looking at a company? s financial statements! Financial accounting is often called the language of business as it is the language that companies use to communicate their financial information to various parties. Regardless of whether you want to work in the field of accounting and finance, become a manager at a company, or just dabble in stock market investing, understanding how a business works, how managers make decisions, and how to analyze financial statements will be hugely beneficial for your future. This seminar will start by exposing you to basic business terminology and concepts, as well as analyzing how businesses make decisions. Next, we will focus on the ABCs of financial statements and financial analysis. Finally, we will apply these principles to real-life case studies and discussions that explore companies such as Spotify, Tesla, Uber, Netflix, Starbucks, Apple, Snapchat, and more!

ACCT 2050. Introduction to Financial Reporting. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to financial accounting for U.S. organizations. Reading financial statements. prereq: Soph

ACCT 2050H. Honors: Introduction to Financial Reporting. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to financial accounting for U.S. organizations. Reading financial statements.

ACCT 3001. Introduction to Management Accounting. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Costing techniques, including activity-based costing. Applying costing methods to determine costs of products, services, and production processes. Use of costs in operating/strategic decisions. prereq: 2050

ACCT 3150. Role of the Accountant in Today's Finance Function. (; 1 cr. ; A-F only; Every Fall & Spring)
How to interact with financial, tax, audit, and IT personnel. How to be an accountant. Critical support role accountants play among market leading companies. Students define their vision for their accounting career. prereq: 2050

ACCT 5101. Intermediate Accounting I. (4 cr. ; A-F or Audit; Every Fall & Spring)
Valuation, measurement, reporting issues related to selected assets/liabilities of firm. Theory underlying accounting issues. Applying accounting principles. prereq: Grade of at least B- in 2050, mgmt major or mgmt grad student, accounting certificate, select non mgmt students

ACCT 5102. Intermediate Accounting II. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Basic valuation problems encountered in financial reporting. Focuses on valuation of liabilities. Accounting for leases, pensions, and deferred taxes. Introduces consolidated financial statements. prereq: 5101[mgmt or grad mgmt student]

ACCT 5125W. Auditing Principles and Procedures. (WI; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Concepts of auditing internal control/financial statements in accordance with generally accepted auditing/professional standards established by Public Company Oversight Board (PCAOB) and American Institute of Certified Public Accountants (AICPA). Writing Intensive course. prereq: [3101 or 5101 or 5100 or 6100], [acct major or grad mgmt student]

ACCT 5126. Internal Auditing. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Financial/operational auditing. Standards. Managing the function. prereq: 2050

ACCT 5135. Fundamentals of Federal Income Tax. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
U.S. federal system of taxation. Concepts of gross income, deductions, credits. Analysis of structure of Internal Revenue Code, its provisions with respect to specific areas of law. Interrelationships between legislative, judicial, and administrative authority. Methods, tools, and techniques to conduct tax research. prereq: [2050 or MBA 6030], [mgmt or grad mgmt student]

ACCT 5141. Financial-Data Analytics. (2 cr. ; A-F only; Every Fall & Spring)
This is a 2-credit undergraduate level financial data analytics course for students at Carlson School of Management. The main learning objective is to familiarize students with large-scale financial reporting and capital market information databases and to improve students? quantitative analytical and problem-solving skills in conjunction with these data. We will discuss financial reporting and corporate governance topics related to business analytics, auditing, capital market efficiency, board structure, and SEC enforcement. Prior coding experience is not required. Students will gain hands-on data query, data analysis, and data visualization experience using MySQL, Excel, and Tableau. Students will learn how to apply scientific research methods to answer questions, present solutions, and discuss limitations. A prerequisite for this course is business statistics. We will also provide a brief overview of the concepts of probability and statistical inference. Relying on the above tools and methodology, students enhance their analytical skills and ultimately achieve deeper understanding on issues related to financial reporting, auditing, and capital markets. Prereq: SCO 2550 or equivalent statistics course.

ACCT 5160. Financial Statement Analysis. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Interpretation/analysis of financial statements. Introduces basic techniques of financial statement analysis and applies them in different settings (e.g., in investment/credit decisions). prereq: [5100/6100 or 3101/5101], [accounting or finance major]

ACCT 5180. Consolidations and Advanced Reporting. (2 cr. ; A-F or Audit; Every Spring & Summer)
Theory underlying preparation of consolidated financial statements, as well as mechanical computations needed to prepare statements. prereq: 5101, 5102 recommended, or MBA 6030. MBA students must register A/F grade base.

ACCT 5201. Intermediate Management Accounting. (2 cr. ; A-F or Audit; Every Fall & Spring)
This course is an in-action course. The course explores the topic of management accounting in greater depth. The course expands introductory course material via special emphasis on decision making, problem solving skills and exploration of accounting's role within overall management. The course is an in-action class. We will have a project working on a business case from a firm as the final assessment for the course. prereq: 3001, acct or finance major

ACCT 5236. Introduction to Taxation of Business. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to the income tax laws governing the taxation of corporations, partnerships, limited liability companies, limited liability partnerships, and S corporations. Students will also increase their knowledge and skills related to tax research by writing research memorandums. prereq: 5135, acct major

ACCT 5310. International Accounting. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Causes/history of international differences in design of financial accounting/reporting systems, efforts to harmonize them into worldwide system. Role/impact of currency translation on financial statements. International Accounting Standards, conceptual framework. prereq: 5101; [5102 or concurrent registration is required (or allowed) in 5102] recommended

ACCT 5320. Financial Reporting Data Analytics. (; 2 cr. ; A-F only; Every Fall)
This is a core course for the students in the Master of Accounting program at Carlson School of Management. The main learning objective is to familiarize students with large-scale financial reporting and market information databases and to improve students' quantitative analytical and problem-solving skills in conjunction with these data. We will discuss financial reporting and corporate governance topics related to earnings management, fraud detection, audit quality, board structure, and SEC enforcement. Students will gain hands-on data analysis experience. Students will also learn how to apply scientific research methods to answer questions, present solutions, and discuss limitations. We will provide a brief overview of the concepts of probability distribution and statistical inference. Relying on the above tools, students enhance their analytical skills and ultimately achieve deeper understanding on issues related to financial reporting and capital markets.Topics vary.

ACCT 5420. MAcc directed study. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Internship or directed study in Master of Accountancy degree program. prereq: MAcc student

Addiction Studies (ADDS)

ADDS 5011. Foundations in Addiction Studies. (; 2 cr. ; A-F only; Every Fall & Spring)
Theoretical perspectives/concepts related to etiology of alcohol/drug dependency/abuse. Emphasizes bio-psycho-social models of addiction/disease: psychodynamics, social learning, contingency, family systems. Connection of theory to empirical research.

ADDS 5021. Introduction to Evidence Based Practices and the Helping Relationship. (3 cr. ; A-F only; Every Fall & Spring)
Initiating, conducting, and terminating a counseling relationship. Use of self in counseling process. Nature/process of helping. Evidence-based practices/theories. Reading, discussion, written exercises, role-play, observation, feedback, out-of-class practice.

ADDS 5031. Applied Psychopharmacology. (2 cr. ; A-F only; Every Spring & Summer)
This course provides a comprehensive survey of the basic concepts of psychopharmacology and psychiatric conditions for which psychoactive medication presents an appropriate intervention strategy. It is intended to be an introduction into the field and is designed to provide a working knowledge base to enable students to more competently address the experiences of their clients taking prescribed psychotropic medications.

ADDS 5041. Methods and Models I: Motivational Counseling. (2 cr. ; A-F only; Every Spring & Summer)
Concepts of motivational interviewing. Spirit of MI. Primary counseling skills. Working with resistance. Identifying/eliciting change talk. Transitioning into change, negotiating treatment plan. Strengths/shortcoming of MI.

ADDS 5051. Methods and Models II: Cognitive Behavioral Therapy. (2 cr. ; A-F only; Every Spring & Summer)
Components of cognitive model. Assessment, case formulation, automatic thoughts, core beliefs, cognitive restructuring, behavior change elements, therapeutic relationship. Learn, practice, master key concepts.

ADDS 5061. Foundations of Group Work. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Designing/facilitating therapy groups. Intra-/inter-personal dynamics, leadership skills, developmental aspects, ethical issues. Application to therapy of chemically addicted individuals. Lectures, discussion, experiential exercises, small groups, readings.

ADDS 5071. Foundations of Co-occurring Disorders. (; 2 cr. ; A-F only; Every Fall & Summer)
Understanding mentally ill/chemically abusive or dependent client. Intervention, advocacy, education, support for client/those part of his/her environment. Social, environmental, multicultural factors that contribute resources for these clients.

ADDS 5081. Multicultural Foundations of Behavioral Health. (3 cr. ; A-F only; Every Fall & Spring)
What is culture? How might culture, cultural practices, and history be significant in the use/abuse of substances? How is culture relevant to the attitudes/practices in the prevention/treatment of substance use/abuse? Multicultural counseling and cultural competence in addiction counseling. People as individuals. Clinician's own cultural worldview/other cultural worldviews.

ADDS 5091. Assessment and Treatment Planning I. (3 cr. ; A-F only; Every Fall & Summer)
Core addictions counseling. Clinical assessment, case management, documentation treatment planning, ethical issues. Students begin process of securing internship.

ADDS 5121. Professional Seminar 1: Internship Prep. (1 cr. ; S-N only; Every Fall, Spring & Summer)
Prepares students for successful entry into field of substance use disorder counseling by focusing on facets that are critical to their professional development. Through discussions, experiential learning activities, guest lectures and site visits, students gain further understanding of the internship placement process and requirements, settings that fit their individual training and career goals, requirements for initial licensing and renewal, the testing process, models of professional development, the importance of professional advocacy and associations, self-care and requirements and benefits of clinical supervision. Professional ethics, including state rules, statutes, codes of conduct and regulations for practitioners and agencies are also addressed. Students will also develop their job search skills and apply them to secure a field placement for the internship seminar.

ADDS 5224. Integrating Spirituality in Counseling Practice. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Knowledge/skills of counseling students/practitioners in professional competencies for addressing spiritual/religious issues. Lecture, discussion, experiential exercises/readings to advance cognitive, interpersonal/practical skills. Treatment of persons with co-occurring disorders.

ADDS 5950. Special Topics. (; 1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Special topics in addiction studies. prereq: dept consent

ADDS 5993. Directed Study. (1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed study. prereq: dept consent

ADDS 5994. Directed Research. (1-3 cr. [max 9 cr.] ; A-F only; Every Fall, Spring & Summer)
Directed research. prereq: dept consent

ADDS 5996. Internship in Behavioral Health. (1 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Internship provides Addiction Studies students with practical experience in settings where substance abuse and/or co-ocurring mental health treatment services are offered. The internship experience allows students to relate academic and theoretical learning to settings outside the classroom. General counseling skills, awareness and influence of self in the counseling process and competency in the 12 Core Functions are enhanced through clinical experience, on-site individual supervision and peer group supervision.

Adult Psychiatry (ADPY)

ADPY 5515. Neuropsychology: University Hospitals. (; 3-9 cr. ; O-N or Audit; Every Fall)

Aerospace Engineering and Mech (AEM)

AEM 1301. Ballooning: Design, Build, and Fly. (; 2 cr. [max 4 cr.] ; Student Option No Audit; Every Fall)
Outer space, sometimes called the Final Frontier, has always been difficult to reach due to the tremendous expense of rocket launches and the limited number of launch opportunities. In this hands-on course, we will hone spacecraft-building skills, including microcontroller programming, soldering, and CAD, then design and build miniature spacecraft and use (relatively) inexpensive helium-filled weather balloons to carry them into the stratosphere (AKA ?near-space?), which has many of the same physical properties (and view!) as outer space. The balloon launch and recovery will be a required day-long class activity on a weekend date in late October or else early-to-mid November. (This activity is weather dependent, so the exact flight date will need to be flexible.) The remainder of the semester will involve data

analysis from the balloon mission as well as discussions and activities associated with full-fledged (i.e. outer space) spaceflight, including the scientific accomplishments and engineering challenges of past, current, and future missions.

AEM 1303. Aircraft: Design, Build, and Fly. (; 2 cr. [max 4 cr.] ; Student Option No Audit; Every Spring)
Now ubiquitous, powered aircraft flight is little more than a century old. In this hands-on seminar, we will explore the fundamentals of flight through the design, flight test, and analysis of small, UAV (uninhabited aerial vehicle) aircraft. Initially, we will cover the history and fundamentals of flight through lectures and discussion, answering questions such as, "how do aircraft fly?" and "why do aircraft look so similar?" Then, working in small teams, students will design, build, and flight test an electric remote-control aircraft. Students will analyze the flight tests to see if the aircraft performed as expected, write reports, and present on the results. Additional elements of the seminar may include lectures, discussions, and activities associated with aircraft, including the engineering challenges of past, current, and future aircraft.

AEM 1805. First Year Projects: Aircraft and Spacecraft. (; 2 cr. [max 4 cr.] ; Student Option No Audit; Periodic Fall & Spring)
Topics related to air and space travel with an emphasis on hands-on projects and activities.

AEM 2011. Statics. (3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Force/moment vectors, resultants. Principles of statics and free-body diagrams. Applications to simple trusses, frames, and machines. Distributed loads. Internal forces in beams. Properties of areas, second moments. Laws of friction. prereq: PHYS 1301W, [concurrent registration is required (or allowed) in Math 2374 or equiv], CSE

AEM 2012. Dynamics. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Kinematics/kinetics of particles. Newton's laws. Energy/momentum methods. Systems of particles. Kinematics/kinetics of planar motions of rigid bodies. Plane motion of rigid bodies. Mechanical vibrations. prereq: 2011, [concurrent registration is required (or allowed) in Math 2373 or equiv], CSE student

AEM 2021. Statics and Dynamics. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Force/moment vectors, resultants. Principles of statics and free-body diagrams. Applications to simple trusses, frames, and machines. Properties of areas, second moments. Internal forces in beams. Laws of friction. Principles of particle dynamics. Mechanical systems and rigid-body dynamics. Kinematics/dynamics of plane systems. Energy/momentum of 2-D bodies/systems. prereq: Phys 1301W, [concurrent registration is required (or allowed) in Math 2374 or equiv], CSE

AEM 2031. Mechanics for Materials Engineers. (3 cr. ; A-F only; Every Spring)
This course covers the basics of equilibrium of rigid and deformable bodies for Materials Engineers. The course begins with the principles of statics, including a review of vector operations and analysis of moments and resultant forces from multiple loads, including distributed loads, equilibrium and free body diagrams, center of gravity and moments of inertia. The course then moves on to explore stress and strain, including normal and shear stresses, and stress and strain transformations. Then the materials properties of interest to the mechanical response and testing procedures used to determine these properties are discussed. Lastly, the stresses and strains associated with common loading modes (e.g., axial, torsion, shear and bending) are covered. Modes of failure, including yielding and buckling, are also introduced. prereq: Math 2374, Math 2373 (concurrent allowed), Phys 1301W, CSE Student, Materials Engineering Major or premajor

AEM 2301. Mechanics of Flight. (; 3 cr. ; A-F or Audit; Every Spring)
Standard atmospheric properties, basic aerodynamics, generation of lift/drag. Airfoils, finite wings. Elements of aircraft performance and atmospheric flight mechanics. Introduction to MatLab and simulations for aircraft design. prereq: PHYS 1301W, [concurrent registration is required (or allowed) in MATH 2373 or equiv], CSE

AEM 3031. Deformable Body Mechanics. (3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Uniaxial loading/deformation. Stress/strain at point, Mohr's circle. Internal forces in beams. Material behavior, linear elasticity. Torsion of circular shafts. Bending of beams of symmetrical section. Column buckling. Statically indeterminate structures. prereq: [2011 or 2021 or [BMEN 3011, BMEN major]], [Math 2374 or equiv], [concurrent registration is required (or allowed) in Math 2373 or equiv], CSE

AEM 3100. Software Applications in AEM. (; 1 cr. [max 4 cr.] ; S-N only; Every Fall & Spring)
Topics covering software applications for problems of interest. prereq: [CSCI 1113 or equiv]

AEM 3101. Mathematical Modeling and Simulation in Aerospace Engineering. (2 cr. ; A-F only; Every Fall)
Mathematical modeling of engineering systems/numerical methods for their solution. Use of MATLAB. Focus on systems found in aerospace engineering/mechanics. prereq: [MATH 2373 or equiv], AEM major

AEM 3391. Independent Design Project. (3 cr. ; A-F only; Every Fall & Spring)
Independent design project construction/testing under guidance of faculty member. Group projects allowed. Students responsible for finding faculty adviser for project. Final project report (written or oral). prereq: dept consent

AEM 4201. Fluid Mechanics. (4 cr. ; A-F or Audit; Every Fall)
First course in fluid mechanics. Stress/strain rate descriptions, fluid statics. Use of differential and finite control volume analysis with continuity. Momentum/energy equations, Bernoulli/Euler equations, vorticity, potential flow, incompressible viscous flow using Navier-Stokes equations, dimensional analysis, pipe flow, boundary layers, separation, introduction to turbulence. prereq: 2012, [Math 2373 or equiv], [Math 2374 or equiv], [CSE upper div or grad student]

AEM 4202. Aerodynamics. (; 4 cr. ; A-F or Audit; Every Spring)
Inviscid aerodynamics. Subsonic, transonic, and supersonic airfoil theory; wing theory. Introduction to compressible flow, normal and oblique shock waves, Prandtl-Meyer expansions. Linearized compressible flow. Wing-body combinations. Computational aerodynamics methods. prereq: upper div CSE or grad, 4201

AEM 4203. Aerospace Propulsion. (; 4 cr. ; A-F or Audit; Every Spring)
Basic one-dimensional flows: isentropic, area change, heat addition. Overall performance characteristics of propellers, ramjets, turbojets, turbofans, rockets. Performance analysis of inlets, exhaust nozzles, compressors, burners, and turbines. Rocket flight performance, single-/multi-stage chemical rockets, liquid/solid propellants. prereq: 4202, [CSE upper div or grad student]

AEM 4247. Hypersonic Aerodynamics. (3 cr. ; A-F or Audit; Spring Odd Year)
Importance/properties of hypersonic flow. Hypersonic shock and expansion-wave relations. Local surface inclination methods. Approximate/exact methods for hypersonic inviscid flow fields. Viscous flow: boundary layers, aerodynamic heating, hypersonic viscous interactions, computational methods. Hypersonic propulsion and vehicle design. prereq: 4202, CSE upper division

AEM 4253. Computational Fluid Mechanics. (3 cr. ; A-F or Audit; Every Fall)
Introductory concepts in finite difference and finite volume methods as applied to various ordinary/partial differential model equations in fluid mechanics. Fundamentals of spatial discretization and numerical integration. Numerical linear algebra. Introduction to engineering and scientific computing environment. Advanced topics may include finite element methods, spectral methods, grid generation, turbulence modeling. prereq: 4201, CSCI 1113, CSE upper division

AEM 4290. Special Topics in Fluid Mechanics. (; 1-3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics vary each semester within the field of Fluid Mechanics prereq: dept consent

AEM 4293. Directed Studies in Fluid Mechanics. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics of current interest. Individual projects with consent of faculty sponsor. prereq: dept consent

AEM 4293. Directed Studies in Fluid Mechanics. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics of current interest. Individual projects with consent of faculty sponsor. prereq: dept consent

AEM 4301. Orbital Mechanics. (3 cr. ; A-F or Audit; Every Spring)
The two-body problem. Earth-satellite operations, rocket performance, reentry dynamics, space environments, interplanetary trajectories. Numerical simulations. Design project. prereq: [2012 or equiv], [MATH 2373 or equiv], [CSE upper div or grad student]

AEM 4303W. Flight Dynamics and Control. (WI; 3 cr. ; A-F or Audit; Every Spring)
Forces/moments, trim, linearization, transfer functions, dynamic response characteristics for aircraft. Aircraft stability/control derivatives, static longitudinal/lateral stability. Phugoid, short period, spiral, roll subsidence, dutch roll modes. Handling qualities. Design project. prereq: [2012, 2301, 3101, [WRIT 1301 or equiv], [CSE upper div or grad student]] or instr consent

AEM 4305. Spacecraft Attitude Dynamics and Control. (3 cr. ; A-F or Audit; Every Spring)
Kinematics/dynamics for six-degree of freedom rigid body motions. Euler's angles/equations. Torque free motion, spin stabilization, dual-spin spacecraft, nutation damping, gyroscopic attitude control, gravity gradient stabilization. Linear systems analysis, Laplace transforms, transfer functions. Linear control theory. PID controllers. prereq: [4301, [3101 or ME 3281 or EE 3015], CSE upper div] or grad student

AEM 4321. Automatic Control Systems. (3 cr. ; A-F or Audit; Every Fall)
Modeling, characteristics, and performance of feedback control systems. Stability, root locus, and frequency response methods. Nyquist and Bode diagrams. Lead-lag and PID compensators. Digital implementation and hardware considerations. prereq: CSE upper div or grad student

AEM 4331. Aerospace Vehicle Design. (; 4 cr. ; A-F only; Every Fall)
Multidisciplinary student teams perform conceptual designs of aerospace vehicles, components, missions, or systems that incorporate realistic constraints/applicable engineering standards. Papers on professional ethics/contemporary aerospace issues. Oral preliminary/critical design reviews. prereq: [2301, 4202, AEM sr] or instr consent

AEM 4333. Aerospace Design: Special Projects. (; 3 cr. [max 6 cr.] ; Student Option; Every Spring)
Student groups design, build, and test aerospace projects. Projects include designs from AEM4331 or projects such as microgravity experiments. Students create and maintain an electronic project data repository, prepare weekly status reports, build and test their design, and prepare a final report. prereq: 4331 or instr consent

AEM 4490. Special Topics in Aerospace Systems. (; 1-3 cr. ; A-F only; Every Fall, Spring & Summer)
Topics vary each semester within the field of Aerospace Systems

AEM 4493. Directed Studies in Aerospace Systems. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics of current interest. Individual projects with consent of faculty sponsor. prereq: dept consent

AEM 4501. Aerospace Structures. (; 3 cr. ; A-F or Audit; Every Spring)
Advanced strength of materials analysis of elastic structures with aerospace applications; failure modes and criteria, buckling, matrix methods for analysis, plane truss design; energy and Castigliano methods for statically determinate and indeterminate structures; torsion and bending of asymmetrical thin-walled sections. Design project. prereq: CSE upper div or grad, 3031 or equiv

AEM 4502. Computational Structural Analysis. (3 cr. ; Student Option; Fall Odd Year)
Application of finite element methods to problems in structural analysis. Emphasizes properly posing problems and interpreting calculation results. Use of commercial FEA packages. Introduction to theory of finite elements. prereq: [Grade of at least C in 4501, [CSE upper div or grad student]] or instr consent

AEM 4511. Mechanics of Composite Materials. (; 3 cr. ; Student Option; Every Spring)
Analysis, design, and applications of laminated and chopped fiber reinforced composites. Micro-/macro-mechanical analysis of elastic constants, failure, and environmental degradation. Design project. prereq: 3031 (or 2031 if MatSci), [CSE upper div or grad student]

AEM 4581. Mechanics of Solids. (3 cr. ; Student Option; Fall Even Year)
Continuum mechanics in one dimension: kinematics; mass, momentum/energy, constitutive theory. Wave propagation, heat conduction. Strings. Euler-Bernoulli theory. 3-D deformations/stress. Topics from fracture mechanics, structural stability, vibrations, thin films, layered media, smart materials, phase transformations, 3-D elastic wave propagation. Elasticity, viscoelasticity, plasticity. prereq: 3031, [Math 2373 or equiv], [Math 2374 or equiv], CSE upper div

AEM 4590. Special Topics in Solid Mechanics and Materials. (; 1-3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics vary each semester within the field of Solid Mechanics and Materials prereq: dept consent

AEM 4593. Directed Studies: Solid Mechanics. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics of current interest. Individual projects with consent of faculty sponsor. prereq: dept consent

AEM 4601. Instrumentation Laboratory. (; 3 cr. ; A-F or Audit; Every Spring)
Introduction to lab instrumentation. Computerized data acquisition. Statistical analysis of data. Time series data, spectral analysis. Transducers for measurement of solid, fluid, and dynamical quantities. Design of experiments. prereq: CSci 1113, EE 3005, EE 3006, [upper div BAEM]

AEM 4602W. Aeromechanics Laboratory. (WI; 4 cr. ; A-F or Audit; Every Fall)
Experimental methods/design in fluid/solid mechanics. Wind tunnel/water channel experiments with flow visualization, pressure, velocity, force measurements. Measurement of stresses/strains/displacements in solids/structures: stress concentrations, materials behavior, structural dynamics. Computerized data acquisition/analysis, error analysis, data reduction. Experiment design. Written/oral reports. Lab ethics. Writing intensive. prereq: 4201, 4501, 4601, [WRIT 1301 or equiv], [CSE upper div or grad]

AEM 4796. Professional Experience. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Work experience with substantive engineering component. Written report. prereq: CSE upper div, AEM major, dept consent

AEM 4894. Directed Studies: Senior Honors Thesis. (; 3 cr. ; A-F only; Every Spring)
Writing thesis under direction of AEM faculty member. prereq: Honors student, permission of University Honors Program, AEM major

AEM 4896. International Professional Experience. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
International work experience with substantive engineering component. Written report. prereq: CSE upper div, AEM major, dept consent

AEM 5247. Hypersonic Aerodynamics. (3 cr. ; A-F or Audit; Spring Odd Year)
Importance/properties of hypersonic flow. Hypersonic shock and expansion-wave relations. Local surface inclination methods. Approximate/exact methods for hypersonic inviscid flow fields. Viscous flow: boundary layers, aerodynamic heating, hypersonic viscous interactions, computational methods. Hypersonic propulsion and vehicle design. prereq: 4202 or equiv, CSE grad student

AEM 5253. Computational Fluid Mechanics. (3 cr. ; A-F or Audit; Every Fall)
Introductory concepts in finite difference and finite volume methods as applied to various ordinary/partial differential model equations in fluid mechanics. Fundamentals of spatial discretization and numerical integration. Numerical linear algebra. Introduction to engineering and scientific computing environment. Advanced topics may include finite element methods, spectral methods, grid generation, turbulence modeling. prereq: [4201 or equiv], [CSci 1113 or equiv], CSE grad student

AEM 5321. Modern Feedback Control. (; 3 cr. ; Student Option; Every Fall)
State space theory for multiple-input-multiple-output aerospace systems. Singular value decomposition technique, applications to performance/robustness. Linear quadratic gaussian and eigenstructure assignment design methods. Topics in H[infinity symbol]. Applications. prereq: 4321 or EE 4231 or ME 5281 or equiv

AEM 5333. Design-to-Flight: Small Uninhabited Aerial Vehicles. (3 cr. ; A-F only; Periodic Spring)

Designing, assembling, modeling, simulating, testing/flying of uninhabited aerial vehicles. Rapid prototyping software tools for vehicle modeling. Guidance, navigation, flight control, real-time implementations, hardware-in-the-loop simulations, flight tests. prereq: [[4202, concurrent registration is required (or allowed) in 4303W, 4601] or equiv], instr consent

AEM 5401. Intermediate Dynamics. (; 3 cr. ; A-F or Audit; Every Fall)
Three-dimensional Newtonian mechanics, kinematics of rigid bodies, dynamics of rigid bodies, generalized coordinates, holonomic constraints, Lagrange equations, applications. prereq: CSE upper div or grad, 2012, Math 2243

AEM 5451. Optimal Estimation. (; 3 cr. ; Student Option; Fall Even Year)
Basic probability theory. Batch/recursive least squares estimation. Filtering of linear/non-linear systems using Kalman and extended Kalman filters. Applications to sensor fusion, fault detection, and system identification. prereq: [[MATH 2243 or STAT 3021 or equiv], [4321 or EE 4231 or ME 5281 or equiv]] or instr consent

AEM 5501. Continuum Mechanics. (; 3 cr. ; Student Option; Every Fall)
Concepts common to all continuous media; elements of tensor analysis; motion, deformation, vorticity; material derivatives; mass, continuity equation; balance of linear, angular momentum; geometric characterization of stress; constitutive equations. prereq: CSE upper div or grad, 3031, Math 2243 or equiv or instr consent

AEM 5503. Theory of Elasticity. (; 3 cr. ; A-F or Audit; Every Spring)
Introduction to the theory of elasticity, with emphasis on linear elasticity. Linear and nonlinear strain measures, boundary-value problem for linear elasticity, plane problems in linear elasticity, three dimensional problems in linear elasticity. Topics from nonlinear elasticity, micromechanics, contact problems, fracture mechanics. prereq: 4501 or equiv, Math 2263 or equiv or instr consent

AEM 5581. Mechanics of Solids. (3 cr. ; Student Option; Fall Even Year)
Continuum mechanics in one dimension: kinematics; mass, momentum/energy, constitutive theory. Wave propagation, heat conduction. Strings. Euler-Bernoulli theory. 3-D deformations/stress. Topics from fracture mechanics, structural stability, vibrations, thin films, layered media, smart materials, phase transformations, 3-D elastic wave propagation. Elasticity, viscoelasticity, plasticity. prereq: 3031 or equiv, [Math 2373 or equiv], [Math 2374 or equiv], [CSE grad student]

AEM 5651. Aeroelasticity. (; 3 cr. ; A-F or Audit; Every Fall)
Static aeroelastic phenomena, torsional divergence of a lifting surface, control surface reversal. Aeroelastic flutter, unsteady aerodynamics. Problems of gust response, buffeting. Design project. prereq: 4202, 4301, [grad student or CSE upper div]

Aerospace Studies (AIR)

AIR 1000. Leadership Laboratory. (1 cr. [max 10 cr.] ; S-N or Audit; Every Fall & Spring)
In Air Force ROTC, you will not only develop your knowledge and skills as a leader in the classroom, you will also apply them for two hours per week in the Leadership Laboratory. There, you'll develop your demonstration of command, effective communication, physical fitness and knowledge of military customs and courtesies.

AIR 1104. Heritage and Values of the United States Air Force. (; 1 cr. ; A-F or Audit; Every Fall)
"Heritage and Values of the United States Air Force," is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.

AIR 1105. Foundations of the United States Air Force II. (; 1 cr. ; A-F or Audit; Every Spring)
This is a survey course designed to introduce students to the United States Air Force. It provides an overview of the basic characteristics, missions, and organization of the Air Force. It also introduces written and oral communication skills.

AIR 1201. Def. (1 cr. ; A-F only;)

AIR 1202. Def. Derm.. (1 cr. ; A-F only;)

AIR 1204. The Evolution of USAF Air and Space Power I. (; 1 cr. ; A-F or Audit; Every Fall & Spring)
This survey course covers the beginnings of manned flight and the development of aerospace power in the United States, including the employment of air power in WWI, WWII, Korea, Vietnam and the Gulf War. It also covers the peaceful employment of U.S. air power in civic actions, space exploration support and scientific missions.

AIR 1205. The Evolution of USAF Air and Space Power II. (; 1 cr. ; A-F or Audit; Every Spring)
This survey course covers the beginnings of manned flight and the development of aerospace power in the United States, including the employment of air power in WWI, WWII, Korea, Vietnam and the Gulf War. It also covers the peaceful employment of U.S. air power in civic actions, space exploration support and scientific missions.

AIR 3301. Air Force Leadership, Quality, and Communication. (; 3 cr. ; A-F or Audit; Every Fall)
Air Force leadership, management, writing, conflicts. Opportunity to present Air Force briefing.

AIR 3302. Air Force Officership, Quality, and Communication. (; 3 cr. ; A-F or Audit; Every Spring)
Focus on completing Quality Air Force training, learning the Officer Professional Development system, exploring leadership styles, ethics, core values, character development, and standards of conduct. Improve written and oral communication skills. Case studies. prereq: 3301 recommended

AIR 3401. National Security Policy. (; 3 cr. ; A-F or Audit; Every Fall)
National security process, regional studies, advanced leadership ethics, Air Force doctrine, and military justice. Military as a profession, officership, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Focus on refining communication skills.

AIR 3402. Preparation for Active Duty. (; 3 cr. ; A-F or Audit; Every Spring)
National security process, regional studies, advanced leadership ethics, Air Force doctrine. Military law, current issues affecting military professionalism. Preparation for active duty as second lieutenant in U.S. Air Force. prereq: 3401 recommended

African Amer & African Studies (AFRO)

AFRO 1011. Introduction to African American Studies. (; 3 cr. ; Student Option; Every Spring)
The study of peoples of African descent including the evolution of African American culture, comparative race relations, feminism and social policy change.

AFRO 1021. Introduction to Africa. (GP; 3 cr. ; Student Option; Every Fall & Spring)
A comparative regional examination of contemporary African challenges and varied struggles using case studies, and a range of analytical parameters. Of particular focus will be issues of political destabilization, social fragmentation,economic disruption; internal displacement and international migration within regional and global contexts.

AFRO 1023W. Introduction to African World Literature. (GP,WI,LITR; 3 cr. ; A-F only; Every Fall & Spring)
Childhood is a time of intense growth and dramatic change; of rapid physical, mental and emotional development. It is a time of discovering, experiencing, exploring; of exuberant curiosity and creativity. It is a state characterized by play and activity, innocence and wonder, surprise and delight. But childhood can also be a time of great confusion and uncertainty; of doubt, turmoil and anxiety. Through select pieces of short fiction, prose, essays and cinematic works, we will analyze the popularity of the coming? of?age genre (or bildungsroman) as a primary mode of formative response within the African world literary tradition. We will consider how the autobiographical or semi-autobiographical story, told by a narrator who is growing up and becoming conscious of their body, their familial and wider social surroundings, their emotions, their very identity, dramatizes the cultural, political, and historical contexts in which it is set. Through our exploration of socialization as a thematic component of the bildungsroman, we will examine how ?coming-of-age? comes to represent something very different for boys and for girls.

AFRO 1911. Blackness and Reality Television. (DSJ; 3 cr. ; A-F only; Periodic Fall & Spring)

Many critics date the summer of 2000, when Survivor and Big Brother quickly became ratings juggernauts, as the beginning of the contemporary reality television boom. Within a few short years, shows like College Hill and America?s Next Top Model began pushing the genre to centralize the experiences of black cast members and, today, reality shows that feature solely or predominately black casts are among the most successful of the genre. For some people, the proliferation of reality television and the roles black people have played in it has been welcome, while for others it has been a major cause for concern, particularly given the complex history of black representation in U.S. public culture. In this course, we will consider what is at stake in the cultural battles over reality television and the fraught history of black media representation. The final six weeks of the course will be dedicated to a reality television-style competition in which students will be expected to work in groups.

AFRO 3002. West African History: 1800 to Present. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
West African history from late 18th century to present. Past/profound changes including new 19th century state formation, European colonialism, post-colonial issues.

AFRO 3006. Impact of African Migrations in the Atlantic World. (; 3 cr. ; A-F or Audit; Periodic Fall)
People of African descent through history. Archeology, geography, literature. Migrations/ activities in the Atlantic world. African history in the New World. Transfer of African rice growing technology and other skills. Development of African American society in the United States.

AFRO 3103. World History and Africa. (GP,HIS; 3 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
This course is an interdisciplinary survey of the history of the African continent. It examines the social, cultural, economic and political transformations that shaped varied African communities from prehistory to the present. Focusing primarily on the intricate intersection of culture, society, economics, and politics, the course examines the concept of ?world history? and Africa?s location in the production of this history as theoretical and analytical lenses. It puts particular emphasis on the social, cultural and political developments that informed individual and collective experiences of various African peoples and societies, including the historical narratives and scholarly discourses associated with them.

AFRO 3108. Black Music: A History of Jazz. (; 3 cr. ; Student Option; Every Spring)
The development of jazz in America and in the world, with special emphasis given to the roots or jazz in the African American experience.

AFRO 3112. In the Heart of the Beat: the Poetry of Rap. (; 3 cr. ; A-F or Audit;)
Contemporary African American poetry as expressed by popular culture contributors. Students analyze/evaluate poems used in rap, in context of African American literature, American culture, and aesthetics.

AFRO 3120. Social and Intellectual Movements in the African Diaspora. (GP,HIS; 3 cr. ; A-F or Audit; Every Fall)
Political, cultural, historical linkages between Africans, African-Americans, African-Caribbean. Black socio-political movements/ radical intellectual trends in late 19th/20th centuries. Colonialism/racism. Protest organizations, radical movements in United States/Europe.

AFRO 3125W. Black Visions of Liberation: Ella, Martin, Malcolm, and the Radical Transformation of U.S. Democracy. (CIV,WI; 3 cr. ; A-F only; Every Spring)
Course on the critical thought of Black intellectual-activists and others enmeshed in the struggles for the radical transformation of U.S. democracy. Introduces the following three leaders and activists--Ella Baker, Martin Luther King, Jr., and Malcolm X--whose work in the building of the Black freedom movement spanned the period from the 1930s to the late 1960s. Course proposition is that their life and times in the struggle for liberation offer important insights into the transformation of the U.S. political economy from the welfare/warfare state to the neoliberal state. These intellectual-activists, as well as others who translate their radical traditions through Black-Brown and Afro-Asian solidarity projects (e.g. Grace Lee Boggs of Detroit) have responded to racial formation in the U.S. and presented not just visions of liberation but concrete alternatives at the grassroots to usher in a more just, egalitarian, and ethical society.

AFRO 3131. Peace & Conflict in 21st Century Africa. (; 3 cr. ; A-F only; Fall Odd Year)
Departing from a country-specific focus and a comparative regional perspective, this course examines contemporary African challenges and varied struggles using case studies, and a range of analytical parameters. Of particular interest will be issues relating to peace and (in)security, ethnic/civil clashes, religious conflicts, authoritarianism, democracy and related impacts: political destabilization, social fragmentation, economic disruption; internal displacement and international migration within regional and global contexts etc. Historical contexts (colonial legacies) and contemporary dynamics (contemporary realities) will be studied from a political, and sociological perspective to establish course content and outcomes.

AFRO 3135. Political Dynamics in the Horn of Africa. (GP,SOCS; 3 cr. ; Student Option; Every Spring)
Who wields political power? Who challenges those in power? And how do they legitimize their claims and go about enforcing them? These are the core questions that will guide our exploration of the political dynamics in the Horn of Africa. Just like most regions in Africa, the Horn is home to diverse cultures and languages. What distinguishes it, however, is the contested nature of state borders, which have been redrawn in ways not observed anywhere else in Africa since the end of European colonialism. The purpose of this class is to delve deeper into these conflicts, to examine the interactions between incumbent governments, armed rebel groups and international actors in shaping war and peace in the Horn. Throughout this journey, we will pay special attention to ideas of sovereignty, identity and violence and draw on literature outside of the Horn to help us better dissect what is going on within it.

AFRO 3205. History of South Africa from 1910. (; 3 cr. ; Student Option; Periodic Fall)
The history of South Africa from the Union to the present. Focus on such issues as African and Afrikaner nationalism, structures of apartheid, forced population removals, divestment and sanctions, and the post-apartheid era.

AFRO 3251W. Sociological Perspectives on Race, Class, and Gender. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Analytical overview of three major forms of inequalities in the United Sates today: race, class, gender. Focus on these inequalities as relatively autonomous from one another and as deeply connected/intertwined with one another. Intersectionality key to critical understanding of these social forces. Social change possibilities.

AFRO 3301. The Music of Black Americans. (AH,DSJ; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Musical contributions of African American artists/innovators from 1619 to present. Apirituals, blues, ragtime, gospel, art music, jazz.

AFRO 3402. Pleasure, Intimacy and Violence. (3 cr. ; Student Option; Spring Odd Year)
Gender/sexual violence to poststructural, anti-racist theories and debates about social construction of sexuality. How intimacy and violence are co-constituted within normative frameworks of U.S. governmentality. Writings by black feminist criminologists who have linked incarceration, welfare reform, and other forms of state regulation to deeply systemic forms of violence against people of color.

AFRO 3426. African Americans, Social Policy, and the Welfare State. (; 3 cr. ; Student Option; Every Spring)
Period between New Deal (1930s) and present. History/impact of federal policy (presidential, congressional, judicial) and race on African Americans. Politics of allocation of insurance versus relief in Social Security Act of 1935. Race and expansion of social benefits after World War II. School desegregation. Kennedy? s civil rights policy, LBJ?s War on Poverty. Affirmative Action. Warren court. Busing. Conservative retreat from welfare state under Ronald Reagan and George Bush.

AFRO 3431. Early Africa and Its Global Connections. (GP,HIS; 3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Survey of African history from earliest times to 1800. Focuses on socioeconomic, political, and cultural development in pre-colonial Africa from ancient Egypt through the era of the trans-Atlantic slave trade.

AFRO 3432. Modern Africa in a Changing World. (GP,HIS; 3-4 cr. ; Student Option; Every Fall, Spring & Summer)
Socioeconomic, political, and cultural development in Africa, from abolition of trans-Atlantic slave trade through postcolonial era.

AFRO 3433. Economic Development in Contemporary Africa. (GP,SOCS; 3 cr. ; A-F only; Every Spring)
Major socio-economic challenges that confront post-independence sub-Saharan African countries in quest for sustainable economic development/growth. Causes of persistent poverty/inequality, role of institutions/ multinational agencies. Growth in 21st century. prereq: APEC 1101 or ECON 1101

AFRO 3436. Contemporary African Conflicts: From Somalia to South Africa. (3 cr. ; Student Option; Periodic Fall)
Historical contexts in which specific contemporary political conflicts developed. Slave trade, colonial conquest, indirect rule, forced labor, discretionary justice. Patterns of human rights violations/socio-political conflict. Cases studies might include Somalia, Democratic Republic of Congo, Rwanda.

AFRO 3578. Contemporary Sub-Saharan African Popular Art Forms. (AH,TS,GP; 3 cr. ; A-F only; Periodic Fall & Spring)
This course explores popular art practices and representations ? mediated through the lens of television, radio, popular cinema, sequential art, and the internet ? as the everyday expressions of modern African identities. As sites where the tensions, frictions, collisions and notably, the productive creativities of the local and the global are circulated, negotiated and contested, African popular cultures provide insights into a unique and increasingly crucial facet of contemporary African artistic practice as critical intervention. The course is designed on the premise that Africans of all social strata and lifestyles are strategic and deliberate consumers of popular cultural forms, generated within local cultures as signifiers of larger social, political, and economic processes. In light of prevailing studies which sometimes end up naively celebrating agency and resistance, AFRO 3578 underscores the role of popular cultures as public/private sites of power's ideological and material (re-) production, contestation, or transformation. It considers creative practices as sites of both resistance and accommodation; of creative adaptation, innovation, and resilience. Through our discussion of communication technologies and their role in transmitting artistic and political ideas beyond the confines of dominant discourses and established institutions, we will evaluate the interface of technology and sociocultural shifts.

AFRO 3592W. Introduction to Black Women Writers in the United States. (DSJ,WI,LITR; 3 cr. ; A-F only; Periodic Fall & Spring)
The literature of African American women writers explored in novels, short stories, essays, poetry, autobiographies, and drama from the 18th to the late-20th century.

AFRO 3593. The African American Novel. (3 cr. ; Student Option; Every Spring)
Explore African American novelistic traditions. Plot patterns, character types, settings, symbols, themes, mythologies. Creative perspectives of authors themselves. Analytical frameworks from contemporary literary scholarship.

AFRO 3597W. Introduction to African American Literature and Culture I. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Fall)
African American oral tradition, slave narrative, autobiography, poetry, essay, fiction, oratory, and drama, from colonial era through Harlem Renaissance.

AFRO 3598W. Introduction to African American Literature and Culture II. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Spring)
African American oral tradition, autobiography, poetry, essay, fiction, oratory, drama. From after Harlem Renaissance to end of 20th century.

AFRO 3601W. African Literature. (GP,WI,LITR; 3 cr. ; A-F only; Every Fall, Spring & Summer)
The globalized present has witnessed increased mobility as economic, political, and social unrest intensify, forcing mass migration of populations across scorching deserts, treacherous mountains and perilous seas. In the United States and in Western Europe specifically, the consequence of this mobility? immigration?remains the single most cross-cutting issue and the most vexed political challenge of the day. Defined as threatening and intrusive, frequently criminalized in discourse and in action, immigrants have become scapegoats for a wide range of problems that bedevil every aspect of life in every country. Blamed for everything from taking jobs from locals to rising crime and the spread of communicable diseases, immigrants have become victims of xenophobic violence and repositories for the routine fear-mongering prevalent in post-9/11 global terror and counter-terror climate. This course addresses the keys issues that arise in contemporary immigration and global security debates. Throughout the course of the semester, we will interrogate the literary and audio-visual arts as a mirror of the times, reflecting socio-political conditions. In a bid to place the current ?crisis? in a historical perspective, we will examine select works by African writers, filmmakers and artists, which provide examples that enable us to move beyond stereotypes and common assumptions.

AFRO 3625W. Women Writers of Africa and the African Diaspora. (GP,WI,LITR; 3 cr. ; A-F only; Spring Even Year)
Works of black women writers from Europe, Africa, South America, and the Caribbean. Novels, drama, films, and essays.

AFRO 3627. Seminar: Harlem Renaissance. (3 cr. ; Student Option; Every Fall)
Review Harlem Renaissance from variety of perspectives. Literary, historical, cultural, political, international. Explore complex patterns of permeation/interdependency between worlds inside/outside of what W.E.B. Du Bois called "Veil of Color."

AFRO 3654. African Cinema. (AH,GP; 3 cr. ; A-F only; Periodic Fall & Summer)
This course introduces you to films written and directed by African filmmakers beginning the 2nd part of the 20th Century. Through an exploration of the stylistic and thematic issues raised by each film, it is expected that students will gain a broad understanding of how African filmmakers portray African social and cultural life, including the artistic and political contexts within which they work. In this way, students will gain an historical perspective on the origins of African filmmaking, confront the basic social, cultural and aesthetic questions raised by African filmmakers and critics, and consider how questions raised by African filmmakers and their films fit into the larger context of world cinema. We will contrast postcolonial African films with Hollywood jungle epics, settler/adventure romances in safari paradise, and colonial movies about Africa. Moving beyond strict categories and standards we will also examine the role of documentary films in shaping our understanding of African people's lives and the social construction of reality. We will review the place of documentary film in the current media-scape and discuss its functions and limitations. Most films will be screened in original languages with English subtitles.

AFRO 3655. African-American Cinema. (AH,DSJ; 3 cr. ; Student Option; Spring Even Year)
African American cinematic achievements from silent films of Oscar Micheaux through contemporary Hollywood and independent films. Class screenings, critical readings.

AFRO 3745. Black Cultural Studies. (AH,DSJ; 3 cr. ; Student Option; Every Spring)
What is black life? And what does it mean to talk about black life in the context of the push toward the liberation of black lives? In recent years we have become accustomed to hearing about and debating the efficacy of the term and movement "Black Lives Matter," but what, other than precarity, constitutes these lives that matter? How have black people collectively thrived even under conditions that would assume otherwise? In this course we will consider the myriad ways black people have gone about creating, dreaming, struggling, building, educating, loving, and living, even in the midst of all that works to bring death near. We will explore a range of cultural forms, including stand-up comedy, hip hop and R&B music, reality television, social media, and film, in order to contemplate the urgency and necessity of black social life, or, what it means to be with and for black people.

AFRO 3864. African American History: 1619 to 1865. (CIV,HIS; 3 cr. ; Student Option; Periodic Spring)
Importance of dynamics of class, gender, region, and political ideology. Changing nature of race/racism.

AFRO 3865. African American History: 1865 to the Present. (3 cr. ; Student Option; Every Fall, Spring & Summer)

History of African American men and women from the beginning of the 20th century to the present. Discussion of internal migrations, industrialization and unionization, The Great Depression, world wars, and large scale movements for social and political change.

AFRO 3866. The Civil Rights and Black Power Movement, 1954-1984. (; 3 cr. ; Student Option; Every Fall)
Modern black civil rights struggle in the U.S., i.e., the second reconstruction. Failure of reconstruction, abdication of black civil rights in 19th century. Assault on white supremacy via courts, state, and grass roots southern movement in 1950s and 1960s. Black struggle in north and west. New emphasis on Black Power, by new organizations. Ascendancy of Ronald Reagan, conservative assault on the movement.

AFRO 3867. Black Men: Representations and Reality. (3 cr. ; Student Option; Every Spring)
This course will explore the lived reality of black men in the United States. Ranging historically-far and thematically-wide, this course will introduce students to the experience of black male labor force participation and employment outcomes; deconstruct representations of black masculinity in popular culture; explore academic dilemmas associated with primary and secondary educational pursuits; and uncover issues connected with law, incarceration, and criminal justice. In addition, this course will examine relationship complexities involving black men and black women, black men and white women, and black men and black men, looking closely at the African-American role in traditional and non-traditional family structures. The course will also address the most central of questions: What is the black male experience, given the growing diversity of black maleness in Minnesota, the United States, and the Diaspora. At the center of the course is not only what other people have said about the black male historical and contemporary experience, but also how black men have imagined and constructed their own experience over time.

AFRO 3868W. Race, War, and Race Wars in American History. (WI; 3 cr. ; A-F or Audit; Fall Odd Year)
Role that race has played in American war history. Impact that wars have had on race and race relations in the United States and the world. Literature and film.

AFRO 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor. A student may only earn credit for a given internship through one course at a time.

AFRO 3910. Topics in African American and African Studies. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

AFRO 3993. Directed Study. (1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual research and study. Prereq-instr consent, dept consent, college consent.

AFRO 4105. Ways of Knowing in Africa and the African Diaspora. (; 3 cr. ; A-F only; Every Fall)
Impact of European knowledge systems on African world. How peoples on African continent and across African diaspora have produced/defined knowledge. Continuity/ change in the way African peoples have thought about and left their epistemological imprints upon the world.

AFRO 4231. Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S.. (3 cr. ; Student Option; Periodic Fall)
Examination of structural or institutional conditions through which people of color have been marginalized in public policy. Critical evaluation of social theory in addressing the problem of contemporary communities of color in the United States.

AFRO 4335. African American Politics. (3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the historical and contemporary efforts by African Americans to gain full inclusion as citizens in the U.S. political system. Specifically, the course explores advocacy efforts by civil rights organizations and political parties to obtain and enforce civil and political rights for blacks. An examination of these efforts begins in the Reconstruction Era and concludes with the historic election of the nation?s first African American president. The course will cover topics such as the politics of the civil rights movement, black presidential bids and racialized voting in federal and state elections. Finally, the course examines how political parties and organized interests used the Voting Rights Act to increase the number of minorities in Congress. The course focuses on whether the growing number of minorities in Congress increases citizens? trust in government and their involvement in voting and participation in political organizations.

AFRO 4406. Black Feminist Thought. (; 3 cr. ; Student Option; Periodic Spring)
Critically examine spatiality of African descendant women in Americas/larger black diaspora. Writings from black feminist/queer geographies, history, contemporary cultural criticism. Recent black feminist theorizing.

AFRO 4478W. Contemporary Politics in Africa and the Colonial Legacy. (GP,WI; 3 cr. ; Student Option; Every Spring)
Examines how current politics in mainly, though not exclusively, sub-Saharan Africa have been shaped by the pre-colonial and colonial processes. Reality of independence; recurrent political and economic crises, global context, and prospects for effective democracy. prereq: POL 1054 or POL 3051 or non-pol sci grad or instr consent

AFRO 4991W. Thesis Research and Writing. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Preparing a research paper that satisfies major project requirement. Defining a research problem. Collecting/analyzing data. Writing the research paper. prereq: dept consent

AFRO 5101. Seminar: Introduction to Africa and the African Diaspora. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Comparative frameworks, related theories, and pivotal texts in study of Africa and African Diaspora.

AFRO 5103. World History and Africa. (3 cr. ; A-F or Audit; Fall Even Year)
Contributions of African American thinkers to making of African history/strategies to rework theoretical/analytical foundations of world history. Writings/intellectual networks of major thinkers whose historical/ethnographic works on Africa spanning nineteenth to twentieth century. prereq: Grad student or instr consent

AFRO 5120. Social and Intellectual Movements in the African Diaspora. (3 cr. ; A-F or Audit; Every Fall)
Political, cultural, historical linkages between Africans, African-Americans, African-Caribbean. Black socio-political movements/ radical intellectual trends in late 19th/20th centuries. Colonialism/racism. Protest organizations, radical movements in United States/Europe. prereq: Grad student or instr consent

AFRO 5191. Seminar: The African American Experience in South Africa. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Ideological, political, religious, and cultural ties that have informed African American and black South African relations from late 18th century to present.

AFRO 5406. Black Feminist Thought. (; 3 cr. ; Student Option; Periodic Spring)
Critically examine spatiality of African descendant women in Americas/larger black diaspora. Writings from black feminist/queer geographies, history, contemporary cultural criticism. Recent black feminist theorizing.

AFRO 5593. The African American Novel. (3 cr. ; Student Option; Every Spring)
Explore African American novelistic traditions. Plot patterns, character types, settings, symbols, themes, mythologies. Creative perspectives of authors themselves. Analytical frameworks from contemporary literary scholarship.

AFRO 5625. Women Writers of Africa and the African Diaspora. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
In Coming to America, a 1988 film which blends humor and romance with some fairly

pertinent observations, an African prince travels to Queens, NY, in search of a bride who will be both an equal and valued partner in life? s great adventure. In the thirty years since, the African immigrant story has become an intrinsic component of the booming canon of contemporary American immigrant literature, which includes such names as Edwidge Danticat, Jhumpa Lahiri, Junot Diaz, Chang-rae Lee, Gary Shteyngart, and others. This literary phenomenon mirrors trends identified in surveys and other similar data gathering activities. According to a 2009 study of the Migration Policy Institute, for instance, more than 75% of the foreign born African population in the United States has arrived since 1990. For these newcomers, Africa is not an imagined ancestral ?motherland? impressed in collective memory. Nor is it a faraway continent of parental origin whose negative media portrayal at times foments a problematic identification. Africa is a lived space, a home left behind, the anchor of childhood memories and?all too frequently? a horizon that perpetually beckons. As for America, it is the idealized land of freedom, prosperity, and opportunity that sometimes gives more than it promised, but oftentimes disenchants. This course situates gender squarely within the interlocking contexts of dynamic, complex and ever-changing African and American landscapes. Over the course of the semester, we will read short stories, novellas, personal narratives and essays, interspersed with visual excerpts from selected films and other representations of immigration, migration and border crossing in contemporary African and American cultural landscapes.

AFRO 5627. Seminar: Harlem Renaissance. (3 cr. ; Student Option; Every Fall)
Review Harlem Renaissance from variety of perspectives. Literary, historical, cultural, political, international. Complex patterns of permeation/interdependency between worlds inside/outside of what W.E.B. Du Bois called "the Veil of Color." prereq: Grad student or instr consent

AFRO 5866. The Civil Rights and Black Power Movement, 1954-1984. (3 cr. ; A-F or Audit; Every Fall)
The "second reconstruction." Failure of Reconstruction, abdication of black civil rights in 19th century. Post-1945 assault on white supremacy via courts/state, grass-roots southern movement in 1950s/1960s. Black struggle in north and west, emphasis on Black Power by new organizations/ideologies/ leaders. Ascendancy of Reagan, conservative assault on movement.

AFRO 5910. Topics in African American and African Studies. (; 3 cr. [max 9 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics vary by instructor.

AFRO 5932. The Production of Knowledge, Negotiating the Past, and the Writing of African Histories. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Recent scholarship on social history of Africa. Focuses on new literature on daily lives of ordinary people in their workplaces, communities, households. prereq: Grad student or instr consent

AFRO 5993. Directed Study. (; 1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading/study for qualified seniors and graduate students. prereq: instr consent

Ag Educ, Comm & Mktg (AECM)

AECM 1001. Introduction to Agricultural Education, Communication & Marketing. (; 1 cr. ; Student Option; Every Fall & Spring)
Historical development of the discipline of agricultural education; orientation to career opportunities; areas and expectations of specialization; issues in the field.

AECM 2051. Current Technical Competencies. (; 4 cr. ; Student Option; Fall Odd Year)
Prepares agricultural education teachers and other agricultural professionals to use technology in the areas of welding and small gas engines. Develop basic skills and knowledge to plan, implement, operate, and maintain agricultural structural and mechanical systems. Experiential learning principles and applied problem solving.

AECM 2096. Career Exploration & Early Field Experience in Agricultural Education, Communication, and Marketing. (; 2 cr. ; A-F only; Every Fall)
Analyses of occupations, employment potential, expectations for work, and readiness for careers in agricultural education, communication, and marketing. Field placement experiences examine career options and professionals in the field. Observe schools, extension offices, and agricultural businesses to learn about the work/workplaces in agricultural education, communication, and marketing.

AECM 2221W. Foundations of Leadership Practice. (WI; 3 cr. ; A-F or Audit; Every Fall)
How to be an effective leader in profit/non-profit agricultural settings. Roles, responsibilities, knowledge, attitudes, and skills to hire staff, set goals, coach, mentor/manage teams, and improve communication.

AECM 2421W. Professional Communication for Agriculture, Food, and the Environment. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Speaking/writing about scientific/technical issues. Student-centered, relies on interaction/ participation. Public communication.

AECM 3051. Building Construction/ Woodworking Technology. (; 4 cr. ; A-F or Audit; Fall Even Year)
Instructional/lab exercises in light frame building construction. Foundations, concrete/ masonry, framing, plumbing, electrical, insulating, roofing. Safe work procedures in a wood shop through small wood project construction will be utilized. Emphasizes safety and use of modern tools and materials.

AECM 3096. Experiential Learning: Production and Business. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall)
Experiential learning in agricultural production and business. Planned, organized, monitored, and evaluated based on a per-experience diagnosis of learning prerequisite to higher level courses in technical agriculture and agricultural business. prereq: AgEd major, instr consent

AECM 3106. Agricultural Policy and Issues in Minnesota. (3 cr. ; A-F only; Spring Odd Year)
This course will introduce students to advocacy and policy-making that affects Minnesota?s agricultural industry, specifically at the farm level. They will experience the policy-making process from an initial idea to building support, lobbying, legislative work, implementation, and the effect policies have on Minnesota farmers. Students will get a behind-the-scenes look at the policy process in action by meeting lawmakers, lobbyists, and staff while on field trips to the Minnesota State Capitol and Minnesota Department of Agriculture. Students will also shadow a current legislator, participate in a mock senate, hear from multiple guest speakers, and research the decision-making process by following an agricultural bill through the legislative session. prereq: 30 credits or instructor approval

AECM 3431. Communicating Food, Agriculture & Environmental Science to the Public. (; 3 cr. ; A-F or Audit; Every Spring)
Planning/strategy for communication campaigns related to food/agriculture. Student-centered, relies on interaction/participation.

AECM 3434. Utilizing Social Media for Food, Agricultural and Natural Resource Sciences. (3 cr. ; A-F only; Spring Odd Year)
The convergence of multiple forms of media, newspaper, video, radio, and photojournalism on the internet is impacting how we communicate complicated scientific issues related to topics such as food safety, agricultural production, and good stewardship of natural resources, and social media have been found to play a critical role in shaping science literacy. Because of the increasing presence of social media in our everyday lives, agriculturists are challenged with how to best package these complex scientific topics to increase science literacy through social media networks. This course aims to provide agriculturists who possess a strong background and understanding of food, agriculture and natural resource sciences with the skills needed to communicate these complex topics to audiences across social media platforms.

AECM 3444. Layout and Design for Food, Agricultural and Natural Resource Sciences. (3 cr. ; A-F only; Spring Even Year)
This course provides students with in-depth, integrated use of leading industry-adopted software (Adobe Illustrator and Adobe InDesign) to develop print communication pieces. The class addresses layout aspects and file preparation critical to printing a project successfully and cost-effectively. Students will learn to create graphic art designs and develop effective print layouts. Serves as a foundational course that covers a range of topics related to layout and design from

principles of design, typology, color, and technical software use. Class assignments focus on developing tools for use in food, agricultural and natural resources strategic and data-driven communications programs.

AECM 3452. Digital Media Essentials for Agriculture, Food and the Environment. (3 cr. ; A-F only; Every Fall)
This course introduces basic digital and video communication skills necessary to be successful in today's workplace specific to professions in agriculture, food, and the environment. Students will infuse learning strategies into basic audio/visual productions and basic website construction focused on informing and communicating complex science topics.

AECM 3462. Podcasting for Science Literacy. (3 cr. ; A-F only; Every Spring)
This course will introduce students to the art of audio storytelling and develop the professional skills used to communicate complex science topics to an intended audience. The course explores a variety of concepts used in audio storytelling and educational programming. Science topics will be researched and scripted in order to maximize acquired production skills with the intention of offering informative content to a target market.

AECM 3480. Special Topics in Agricultural Education. (; 1-4 cr. [max 24 cr.] ; Student Option; Every Fall, Spring & Summer)
Lectures by visiting scholar or regular faculty member. Topics specified in Class Schedule.

AECM 3993. Directed Study in Agricultural Education, Communication & Marketing. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

AECM 3994. Directed Research in Agricultural Education, Communication and Marketing. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

AECM 4011. Applied Agribusiness Marketing Strategies. (; 2 cr. [max 3 cr.] ; Student Option; Every Spring)
Application of marketing knowledge that involves building a complete marketing plan for an agricultural product or device. Team projects are used.

AECM 4432. Advanced Video Production for Agriculture, Food and the Environment. (3 cr. ; A-F only; Every Spring)
This course focuses on advanced digital media production skills necessary to be successful in today's workplace specific to professions in agriculture, food and the environment. Students will infuse learning strategies into advanced documentary-style audio/visual productions. Content will be used to produce educational websites focused on informing and communicating complex science topics. prereq: AECM 3452 or Instructor Consent

AECM 4444. Food and Agricultural Marketing Campaigns. (3 cr. ; A-F only; Every Fall)
This course discusses the strategy and tactical tools and techniques required to create and execute an integrated marketing communications program in the food and agricultural industries. We will cover the issues and elements of audience analysis and segmentation, advertising, brand management, product development/naming, product placement, package design and labeling, advertising and marketing avenues, and evaluation of advertising effectiveness.

AECM 4451W. Advanced Persuasive Writing for Agricultural and Environmental Sciences. (WI; 3 cr. ; A-F or Audit; Every Fall)
In this course, students research, write, and edit stories for agricultural, food and environmental organizations and media. Students produce a final portfolio that demonstrates their ability to create professional-level work, such as magazine articles, news stories, biographies, marketing materials, blog posts, news releases and scripts.

AECM 4452. Virtual Field Trip Production for Agriculture, Food & Natural Resource Science Education & Comm. (3 cr. ; A-F only; Every Fall)
This course explores the process of using digital media production skills to develop educational virtual field trips. Produced content will focus on reaching students in the K-12 classroom. Topics range from basic to complex agriscience concepts and often times will rely on the virtual setting due to limitations of biosecurity hazards, OSHA guidelines and industry regulations. Students will script and produce curriculum driven video content as well as develop supplemental media assets to be used as classroom activities for field trip participants. prereq: AECM 3452 or Instructor Consent

AECM 5111W. Agricultural Education: Methods of Teaching. (WI; 4 cr. ; Student Option; Every Fall)
Use of teaching resources; principles of teaching and learning; problem-solving techniques, lesson plan construction for large group, small group and individual investigations; student management; and assessment.

AECM 5112. Agricultural Education Program Organization and Curriculum for Youth. (; 3 cr. ; Student Option; Every Spring)
Development of community school program in agriculture, agribusiness, and environmental science. Program to meet graduation outcomes and determine student needs.

AECM 5114. Agricultural Education Teaching Seminar. (; 1 cr. ; Student Option; Every Spring)
Reflective learning on teacher preparation experience; identify issues and problems facing the discipline; needs for continual preparation and program adjustment.

AECM 5115. Foundations of Agricultural Education. (3 cr. ; A-F only; Every Fall)
This course explores historical and philosophical foundations and current structures of school-based agricultural education programs. Students will understand, value, and apply strategies to implement and manage the integrated program model of agricultural education.

AECM 5116. Coordination of SAE Programs: Work-based Learning. (; 2 cr. ; A-F or Audit; Periodic Spring)
Principles and techniques for coordinating work-based learning. Supervised agricultural experience in agricultural education. Historical and philosophical roots of experiential learning, integration with classroom instruction, legal aspects, record keeping, coordination techniques, current agreement laws.

AECM 5118. Strategies for Managing and Advising the FFA Organization. (; 2 cr. ; A-F or Audit; Every Spring)
Principles and techniques to advise an FFA chapter. Historical and philosophical basis of FFA, organization and structure. Integration with classroom instruction, public relations, recruitment, and administration of FFA chapters.

AECM 5125W. Designing Curriculum & Instruction for Agricultural Education. (WI; 3 cr. ; A-F only; Every Spring)
This course provides students an opportunity to understand, observe, and experience the process of developing curriculum and instruction for school-based agricultural education. Through coursework and a part-time clinical field experience (minimum of 25 hours at an assigned placement) in a school setting (grades 5-12), students will engage in the development of middle and secondary school agricultural education curricula. Special consideration in planning will be given to identifying regional, state, and community needs as well as student interest and prior knowledge. Students will have the opportunity to determine a programmatic framework, outline a scope and sequence of courses within a school-based agricultural education program, develop course outlines and materials, and create units, sub-units, and daily lessons for a variety of content areas. Additionally, using the integrated program model, curricular and instructional opportunities related to experiential learning (Supervised Agricultural Experience ? SAE) and leadership

development (FFA) will be addressed. prereq: Jr or Sr Ag Ed student, or Ag Ed MS IL student.

AECM 5135. Instructional Methodology for Agricultural Education. (3 cr. ; A-F only; Every Fall)
This course focuses on instructional methodology for use in school-based agricultural education. Students will understand and apply psychological principles of teaching and learning, practice a variety of instructional strategies, develop pedagogical content knowledge, and apply the integrated program model of agricultural education to classroom teaching. Prerequisites: Junior or senior Ag Ed student or Ag Ed MS IL student

AECM 5145. Agricultural Education Classroom & Program Leadership. (3 cr. ; A-F only; Every Fall)
This course examines models of classroom and program leadership within school-based agricultural education. Through coursework and a part-time clinical field experience (minimum of 25 hours) in a school setting (grades 5-12), students will learn, observe, and experience the ways in which school-based agricultural education teachers create and maintain an effective classroom/lab environment, manage student behavior, communicate and engage with school district leaders, program stakeholders, and community members to ensure student success. (3 credits) Prereqs: Jr or Sr Ag Ed student or Ag Ed MS IL student

AECM 5155. Agricultural Education Teaching Seminar. (3 cr. ; A-F only; Every Spring)
This course emphasizes professionalism and the code of ethics for school-based agricultural educators. Students are prepared for the job search and teacher licensure application process. Students take this course concurrent with AECM 5698-Teaching Internship and apply professionalism and the integrated program model in their classroom, school, and community. Prereqs: Jr or Sr Ag Ed Student or Ag Ed MS IL student

AECM 5220. Special Topics in Agriculture Education and Extension. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Content varies by offering.

AECM 5231. Agricultural Education Curriculum K-12. (; 2 cr. ; A-F or Audit; Periodic Fall)
Philosophy, organization, and administration of instruction in agricultural education programs at the elementary, middle, and high school levels.

AECM 5233. Advanced Procedures in Teaching Agricultural Education. (; 2 cr. ; A-F or Audit; Periodic Fall)
New developments in methodology; assessment of innovations and procedures; consideration of various levels of instruction.

AECM 5235. Experiential Learning in Agricultural Education. (; 2 cr. ; Student Option; Periodic Fall & Spring)
The organization and administration of agricultural experience programs for middle and secondary level students: career exploration, improvement projects, experiments, placement in production/business/community settings, entrepreneurship. Current state and national programs and resource material.

AECM 5280. Current Issues for the Beginning Agricultural Education Teacher. (; 1-3 cr. ; Student Option; Every Fall & Spring)
Reflection, analysis on current problems and issues confronting beginning teachers of agricultural education. Issues in teaching methods, classroom and program management, discipline, curriculum, FFA and SAE development, school-to-work relationships.

AECM 5696. Teaching Internship. (; 2-10 cr. [max 20 cr.] ; A-F only; Every Spring)
Agricultural Education teaching experience in a school system that provides instruction to grades 5-12. prereq: Admission to initial licensure program

AECM 5697. Teaching Internship: School and Classroom Setting. (; 2 cr. ; Student Option; Every Fall)
Part-time supervised teaching experience in a school. Seminars on managing student's learning in context of work and human resource education programs in contemporary schools and on becoming a reflective educator. prereq: WHRE 5696 for initial licensure program

AECM 5993. Directed Study in Agricultural Education and Extension. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics may be chosen to permit study of areas within education or to supplement areas of inquiry not provided in the regular course structure.

AECM 5995. Integrating Paper--Master of Education: Agricultural and Extension Education. (; 1-5 cr. [max 10 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Students prepare paper dealing with issues in agricultural education applied to professional responsibilities. AFEE 5995 can be taken for 1-5 credits, and students can enroll for two semesters for a combined max total of 5 credits.

Agronomy and Plant Genetics (AGRO)

AGRO 1101. Biology of Plant Food Systems. (BIOL; 4 cr. ; Student Option; Every Spring)
Designed for students who are not majors in a life science program, but who wish to acquire a better understanding of biological concepts especially as they relate to their lives. We examine current issues related to food, food production and the environment which provide the context to investigate fundamental concepts of biology including productivity, energy, genetic change in populations, and environmental responses to human activity. We use a problem-based learning approach to explore three contemporary issues of great importance: risks and benefits of GMOs, farming and food, and the dead zone in the Gulf of Mexico. Lab, greenhouse, field, and classroom discussions.

AGRO 1103. Crops, Environment, and Society. (ENV; 4 cr. ; Student Option; Every Fall)
Plants that supply food, fiber, beverages, and medicine to humans. Plant identification, plant physiology, plant breeding/biotechnology, plant ecology, crop culture/management.

AGRO 1660W. First-Year Colloquium/ Experience in Agroecosystems Analysis. (WI; 2 cr. ; A-F or Audit; Every Fall)
Agroecosystems and their impacts on the environment, landscapes, and rural communities. Students develop a course plan within their major, explore career options, and increase their familiarity with the department, its history, and its faculty/staff. Field trips, discussions, readings, reflective writings. prereq: 1st yr in major hosted by Department of Agronomy and Plant Genetics

AGRO 2022. Growth and Development of Minnesota Field Crops. (1 cr. [max 2 cr.] ; S-N only; Every Fall)
Students learn how field crop species grow and develop, how unique traits of crop species contribute to ecosystem services, and how to identify important growth stages of crops. In addition to traditional agronomic crops (small grains, alfalfa, soybean and corn), students will work with annual and perennial species that represent emerging crops grown for grain, oil seed, novel products, cover crops and biomass. Course work includes lectures, labs (greenhouse and field), and online assignments and quizzes. prereqs: AGRO 1101 or HORT 1001 or BIOL 1009 or BIOL 1001 and AGRO 1103

AGRO 2402. The Science of Cannabis. (2 cr. ; Student Option; Every Fall)
Botany, growth and development of cannabis, industrial and medical uses, cultivation of industrial and medical cannabis, human health and social impacts, federal and state regulations.

AGRO 2501. Plant Identification for Urban and Rural Landscapes. (; 1 cr. ; Student Option; Periodic Fall)
Identification of weed species and native herbaceous plants that are important in crop production, turf management, horticulture production, and landscapes systems. This course will emphasize the identification of weed species and other plants found in Minnesota and the upper Midwest area of the United States. Plant families, life cycles, habitats and relationships to humans. prereq: Biol 1009 or equiv

AGRO 2502. Introduction to Integrated Weed Management. (1 cr. [max 2 cr.] ; A-F or Audit; Every Fall)
Weeds reduce crop yield and quality, affect human health, and result in significant economic loss. This course is for undergraduate students interested in learning more about weed management techniques in an applied context. The goal is to develop a basic understanding of how weed biology and ecology are used to select

and integrate weed control tools for effective long-term management of weeds in annual and perennial cropping systems. The topics to be covered in this course will include basic understanding of weed biology/ecology, knowledge of different mechanical, cultural, and chemical weed control tools, and process for integration to meet specific goals. The course involves active, hands-on learning around new technologies as well as guest lecturers from industry. Agro 1103 or Biol 1009 is recommended. Agro 2501 is highly encouraged.

AGRO 3093. Directed Study. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed Study: A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

AGRO 3094. Directed Research. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

AGRO 3203W. Environment, Global Food Production, and the Citizen. (GP,WI; 3 cr. ; Student Option; Every Spring)
Ecological/ethical concerns of food production systems in global agriculture: past, present, and future. Underlying ethical positions about how agroecosystems should be configured. Decision cases, discussions, videos, other media.

AGRO 3305. Agroecosystems of the world. (GP; 3 cr. ; Student Option; Every Fall)
Explore four different areas of world (Minnesota, Morocco, Nepal, Costa Rica) by networking with locals on ground in each region through online interactions. Food, agriculture, environment. Biophysical/socio-cultural aspects of agroecosystems through unique multi-disciplinary lens.

AGRO 3660. Plant Genetic Resources: Identification, Conservation, and Utilization. (; 3 cr. ; A-F only; Spring Even Year)
Importance of plant genetic diversity. Morphological, molecular, and computational methods of identifying/conserving genetic resources. Biological basis of genetic diversity. Case studies in crop improvement. prereq: Introductory biology

AGRO 4093. Directed Studies for Advanced Students. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Allows study of agronomy in greater depth or in areas not currently offered in formal courses. Tutorial instruction under staff guidance. prereq: 15 cr in agronomy, instr consent

AGRO 4094W. Undergraduate Directed Thesis Research. (WI; 2 cr. ; S-N only; Every Fall, Spring & Summer)
Research/thesis conducted under supervision of CFANS faculty member. Written thesis describing research results. prereq: Jr or Sr

AGRO 4096W. Professional Experience Program: Internships. (WI; 2 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Supervised professional experience with a private company, public agency, or non-profit organization involved in plant production or food systems. Reflective analysis of professional experience and technical communication on a topic related to the internship. This course meets on campus once in late spring and twice in early fall with several online activities during the summer.

AGRO 4105. Crop Management Field School: A Hands-on Immersion. (1 cr. [max 2 cr.] ; A-F only; Every Summer)
In this course, you will apply and integrate principles and concepts of agronomy, plant pathology, entomology, and soil and weed science in a hands-on field setting with real-life scenarios and problems common in production agriculture. prereqs: BIOL 1001, 1009 or HORT 1001; AGRO 1103, and SOIL 2125

AGRO 4505. Biology, Ecology, and Management of Invasive Plants. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Ecology/biology of invasive plant species (weeds). Principles of invasive plant management in agricultural/horticultural, urban, wetland, aquatic, and other non-cropland landscape systems, utilizing biological, cultural, and chemical means. Management strategies to design systems that optimize invasive plant management in terms of economic, environmental, and social impacts. prereq: 4005, [Bio 3002 or equiv], Soil 2125, [Agro 2501 or Hort 1011]

AGRO 4605. Strategies for Agricultural Production and Management. (3 cr. ; Student Option; Every Fall)
Information/tools necessary to make informed land management decisions in ever-evolving economic, policy, climate environments. Evaluate hows, whats, whys of crop management by solving real-world problems that agricultural professionals face. State-of-the-art production/management practices for major agricultural crops in Minnesota. Lectures feature agricultural professionals/experts. Lab component provides hands-on experience with modern equipment/data interpretation. prereq: 1101 or equivalent, [CHEM1015/17 or equivalent], SOIL1125 or equivalent], [jr or sr or grad student or instr consent]

AGRO 4888. Issues in Sustainable Agriculture. (; 2 cr. ; Student Option; Every Fall)
Agroecology, sustainable practices, production economics, environmental quality, holistic resource management, healthy food/water, rural communities. Meet sustainable-agriculture advocates, including farmers, faculty, and representatives of non-profit sustainable-agriculture organizations. prereq: 1103, Soil 1125 or 2125 or equiv

AGRO 5021. Plant Breeding Principles. (; 3 cr. ; Student Option; Every Fall)
This course is intended for advanced undergraduate students and graduate students that are either: 1) not plant breeding majors who will benefit from a basic understanding of how genetics is applied to plant improvement; or 2) plant breeding majors lacking prior coursework in plant breeding. The objective of this course is to develop an understanding of the underlying principles, ideas, and concepts important to applying genetic principles to plant breeding, evaluating breeding methods, and enhancing genetic progress and efficiency.

AGRO 5121. Applied Experimental Design. (; 4 cr. ; Student Option; Every Spring)
Principles of sampling methodologies, experimental design, and statistical analyses. Methods/procedures in generating scientific hypotheses. Organizing, initiating, conducting, and analyzing scientific experiments using experimental designs and statistical procedures. prereq: Stat 5021 or equiv or instr consent

AGRO 5311. Research Methods in Crop Improvement and Production. (; 1 cr. ; S-N or Audit; Every Fall & Summer)
Demonstrations and discussions of techniques in crop improvement and/or production research. Presentations integrate biotechnology with traditional breeding methods; production sessions emphasize ecologically sound cropping systems. prereq: applied plant sciences grad

AGRO 5321. Ecology of Agricultural Systems. (; 3 cr. ; A-F or Audit; Every Spring)
Ecological approach to problems in agricultural systems. Formal methodologies of systems inquiry are developed/applied. prereq: [3xxx or above] course in [Agro or AnSc or Ent or Hort or PlPa or Soil] or instr consent

AGRO 5431. Applied Plant Genomics and Bioinformatics. (3 cr. ; Student Option; Every Spring)
Analysis, interpretation, visualization of large plant genomic datasets. Basic computer programming, applying large-scale genomics to answer basic/applied biological questions, understanding limitations of each application, presenting concise visual findings from large-scale datasets. prereq: Grad student or [undergrad with genetics course]

AGRO 5980. Publishing in Plant Science Journals. (; 2 cr. ; S-N only; Every Fall)
Organizational/writing skills for reporting research results in a peer-reviewed journal manuscript. Publication process; choosing your journal; characteristics of good scientific writing; ethics, plagiarism, and authorship; stating your objectives; writing the different

components of a manuscript; citing literature; use of tables and figures; proofreading. Written manuscript ready for submission to a plant science journal. prereq: instr consent

AGRO 5999. Special Topics: Workshop in Agronomy. (; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
Workshops on various topics in agronomy and plant genetics. Presenters/faculty may include guest lecturers/experts. Topics specified in class schedule.

Akkadian (AKKA)

AKKA 5011. Elementary Akkadian I. (; 3 cr. ; Student Option; Periodic Fall)
Introduction to cuneiform script. Basics of Old Babylonian morphology and syntax. Written drills, readings from Hammurabi laws, foundation inscriptions, annals, religious and epic literature. prereq: Adv undergrads with instr consent or grads

AKKA 5012. Elementary Akkadian II. (; 3 cr. ; Student Option; Periodic Fall)
Continuation of 5011. Readings include The Gilgamesh Epic, The Descent of Ishtar, Mari Letters, Annals of Sennacherib and Essarhaddon, Sargon II. prereq: 5011

American Indian Studies (AMIN)

AMIN 1001. Introduction to American Indian & Indigenous Peoples. (DSJ; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to how voices/visions of indigenous peoples have contributed to history of cultural expression in North America. Historic contexts/varieties of this expression by region, tribal cultures. Emphasizes contributions in literature, philosophy, politics, fine arts.

AMIN 1002. Indigenous Peoples in Global Perspective. (GP; 3 cr. ; A-F or Audit; Every Fall & Spring)
Colonial experiences of selected indigenous peoples in Americas, Euroasia, Pacific Rim.

AMIN 1003. American Indians in Minnesota. (DSJ,HIS; 3 cr. ; A-F or Audit; Every Fall & Spring)
History, culture, and lived experience of American Indian people in Minnesota. Self-representation and histories of Anishinaabe (Ojibwe) and Dakota peoples through film, music, oral traditions, and written texts. Work by non-Indian scholars focuses on cultural, philosophical, and linguistic perspectives of Anishinaabe and Dakota peoples.

AMIN 3001. Public History. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Interpretations of collective past as produced in public venues, including museum exhibitions, films, theme parks, and websites. Intellectual and political issues in history produced for public audiences. Career opportunities. prereq: instr consent

AMIN 3141. American Indian Language Planning. (; 3 cr. ; A-F or Audit; Periodic Fall)
Planning for maintenance/revitalization of North American indigenous languages. Condition/status of languages. Documentation, cultivation, literacy, education.

AMIN 3201W. American Indian Literature. (DSJ,WI,LITR; 3 cr. ; A-F only; Every Fall & Spring)
Comparative studies of oral traditions, modern literature from various tribal cultures.

AMIN 3301. American Indian Philosophies. (AH,DSJ; 3 cr. ; Student Option; Every Fall, Spring & Summer)
World views of indigenous people of Americas. Topics include native medicines/healing practices, ceremonies/ritual, governance, ecology, humor, tribal histories, status of contemporary native people.

AMIN 3303. American Indians and Photography. (AH,DSJ; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Historical/comparative overview of photos in which American Indian people are central subjects. Primary features of images in American Indian photos. Relationships among those involved in making/viewing photos. Ways in which photos are interpreted. Relation of photos to social contexts in which they are produced and to agencies of those who stand behind their making.

AMIN 3304. Indigenous Filmmakers. (AH; 3 cr. ; Student Option; Every Spring)
Analysis of film/video made by American Indian writers, directors, producers within contexts of tribally specific cultures/histories, as well as within context of US culture/film history.

AMIN 3312. American Indian Environmental Issues and Ecological Perspectives. (ENV; 3 cr. ; Student Option; Every Spring)
American Indian environmental issues in U.S./ Canada. Analysis of social, political, economic, legal forces/institutions. Colonial histories/tribal sovereignty.

AMIN 3402. American Indians and the Cinema. (AH,DSJ; 3 cr. ; A-F or Audit; Every Spring & Summer)
Representations of American Indians in film, historically/contemporarily. What such representations assert about Native experience and cultural viability. What they reflect about particular relationships of power.

AMIN 3409. American Indian Women: Ethnographic and Ethnohistorical Perspectives. (DSJ,HIS; 3 cr. ; Student Option; Fall Even Year)
Comparative survey of ethnographic/ ethnohistorical writings by/about American Indian women.

AMIN 3501. Indigenous Tribal Governments and Politics. (DSJ,HIS; 3 cr. ; A-F or Audit; Fall Even Year)
History, development, structure, politics of American Indian Governments. North American indigenous societies from pre-colonial times to present. Evolution of aboriginal governments confronted/affected by colonizing forces of European/Euro-American states. Bearing of dual citizenship on nature/powers of tribal governments in relation to states, federal government.

AMIN 3602. Archaeology and Native Americans. (DSJ; 3 cr. ; Student Option; Fall Even Year)
Historical, political, legal, and ethical dimensions of the relationship of American archaeology to American Indian people. Case studies of how representational narratives about Native people are created through archaeology; responses by Native communities; and the frameworks for collaborative and equitable archaeological practice. Professional ethics in archaeology/ heritage studies in American contexts.

AMIN 3604. Indigenous Immersion Methods for the Home, Classroom, and Community. (3 cr. ; A-F only; Every Spring)
Prepares students as advanced language students to participate in and facilitate immersion environments within both formal and informal settings including the home, second language classrooms, immersion classrooms, language tables, immersion camps, and other community settings. prereq: OJIB 3104, DAKO 3124 or four semesters of another target language, or with instructor approval.

AMIN 3711. Dakota Culture and History. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Dakota culture, language, history, literature. Contemporary issues, the arts.

AMIN 3871. American Indian History: Pre-Contact to 1830. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
American Indian history from the era of ancient Native America to the removal era. Social, cultural, political, and economic diversity of Native American peoples and Native American experiences with European colonialism.

AMIN 3872. American Indian History: 1830 to the Present. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Focus on the impact of federal Indian policy on American Indian cultures and societies, and on American Indian culture change.

AMIN 3896. Internship for Academic Credit. (; 1-4 cr. ; A-F only; Every Fall, Spring & Summer)
Allows students to examine, reflect on, and construct meaning from their internship experience through self assessment of personal and career needs and goals, examination of what it means to be a "professional" and operate within professional environments, evaluation of performance and accomplishments, articulation of knowledge and skills via effective resume writing. A student may only earn credit for a given internship through one course at a time.

AMIN 3920. American Indian Studies Topics. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Various topics in American Indian Studies.

AMIN 4231. Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S.. (3 cr. ; Student Option; Periodic Fall)
Structural or institutional conditions through which people of color have been marginalized

in public policy. Critical evaluation of social theory in addressing the problem of contemporary communities of color in the United States.

AMIN 4501. Law, Sovereignty, and Treaty Rights. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
History of American Indian law and the post-contact effects of colonial and U.S. law on American Indians through the 20th century. prereq: 1001

AMIN 4511. Indigenous Political Economies. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Sources, nature, consequences of social/economic development/change in Indian communities. Precontact Indian communities. Effect of European contact. Social movements into 20th century, including phenomenon of urban Indian communities. prereq: 1001

AMIN 4525W. Federal Indian Policy. (WI; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Formulation, implementation, evolution, comparison of Indian policy from pre-colonial times to self-governance new millennium. Theoretical approaches to federal Indian policy. Major federal Indian policies. Views/attitudes of policy-makers, reactions of indigenous nations to policies. Effect of bodies of literature related to policies.

AMIN 4532. Vine Deloria, Jr.: A Renaissance Indigenous Figure. (3 cr. ; Student Option; Periodic Fall & Spring)
In-depth consideration of indigenous scholar and activist Vine Deloria Jr.'s intellectual works, and impacts on fields such as law, religion and theology, history, natural and social science, literary criticism, education, anthropology, paleontology, and political science. Students read, discuss, produce research on an aspect of Deloria's work.

AMIN 4821W. Capstone Seminar. (WI; 3 cr. ; A-F only; Every Fall)
Seminar for preparation/completion of American Indian Studies Senior Project requirement.

AMIN 4990. Topics in American Indian Studies. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

AMIN 4994. Directed Research. (1-12 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Individually arranged research with faculty to meet student needs and interests. Prereq-instr consent, dept consent, college consent.

AMIN 4996. Field Study. (1-12 cr. [max 18 cr.] ; Student Option; Every Fall & Spring)
Opportunities for experiential learning in a variety of American Indian community settings. Consult department faculty at least one term before enrolling. Prereq-instr consent, dept consent, college consent.

AMIN 5107. The Structure of Anishinaabemowin, the Ojibwe Language. (; 3 cr. ; A-F or Audit; Periodic Fall)
Analysis of grammatical structures of Anishinaabemowin. prereq: 3104

AMIN 5141. American Indian Language Planning. (; 3 cr. ; A-F or Audit; Periodic Fall)
Planning for maintenance/revitalization of North American indigenous languages. Condition/status of languages. Documentation, cultivation, literacy, education. prereq: 3103 or 3123 or instr consent

AMIN 5202. Indigenous Peoples and Issues Before the United States Supreme Court. (3 cr. ; Student Option; Periodic Fall & Spring)
Seminar explores the role and the practice of the US Supreme Court as a policy-making institution when dealing with indigenous nations and their citizens. Analysis of theoretical, behavioral, political, and institutional perspectives. Student work includes reading and textual analysis, leading discussions, analytical research paper.

AMIN 5402. American Indians and the Cinema. (AH,DSJ; 3 cr. ; A-F or Audit; Every Spring & Summer)
Representations of American Indians in film, historically/contemporarily. What such representations assert about Native experience and cultural viability. What they reflect about particular relationships of power.

AMIN 5409. American Indian Women: Ethnographic and Ethnohistorical Perspectives. (DSJ,HIS; 3 cr. ; Student Option; Fall Even Year)
Comparative survey of ethnographic/ethnohistorical writings by/about American Indian women.

AMIN 5412. Comparative Indigenous Feminisms. (GP; 3 cr. ; Student Option No Audit; Periodic Fall & Spring)
The course will examine the relationship between Western feminism and indigenous feminism as well as the interconnections between women of color feminism and indigenous feminism. In addition to exploring how indigenous feminists have theorized from 'the flesh' of their embodied experience of colonialism, the course will also consider how indigenous women are articulating decolonization and the embodiment of autonomy through scholarship, cultural revitalization, and activism.

AMIN 5602. Archaeology and Native Americans. (DSJ; 3 cr. ; Student Option; Fall Even Year)
Historical, political, legal, and ethical dimensions of the relationship of American archaeology to American Indian people. Case studies of how representational narratives about Native people are created through archaeology; responses by Native communities; and the frameworks for collaborative and equitable archaeological practice. Professional ethics in archaeology/heritage studies in American contexts.

AMIN 5890. Readings in American Indian and Indigenous History. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Students in this course will read recently published scholarship in American Indian and Indigenous history that takes up pressing research questions, promises to push inquiry in new directions, and that theorizes important interventions in our thinking to understand where the field is situated and moving. Reflecting the instinctively interdisciplinary nature of American Indian and Indigenous history, readings will be drawn not just from the discipline of history but across other disciplines such as Anthropology, American Studies, Geography, Literature, Political Science, and Legal Studies. As well, readings will include scholarship that reaches out to embrace the Global Indigenous studies turn. prereq: Advanced undergrad with instr consent or grad student

AMIN 5891. American Indian and Indigenous Studies Workshop. (1.5 cr. [max 12 cr.] ; S-N or Audit; Every Fall & Spring)
The American Indian and Indigenous Studies Workshop brings graduate and advanced undergraduate students and faculty together to read and provide intensive feedback (written and oral) on their works in progress. As an interdisciplinary field, AIIS students stand to benefit from ongoing and engaged conversations about that work that will deepen and enhance their professionalization in the field. The readings for the workshop are submissions from the membership of the workshop (which will include participants who are not formally enrolled in the workshop). We read and consider two submissions per week (sometimes more if the submissions are shorter) that are pre-circulated to all participants via the workshop?s listserv. Readings under consideration include research papers, dissertation chapters, article manuscripts, research proposals, conference papers, and other submissions that will benefit from intensive engagement with the members and will deepen the knowledge of all of the participants. Students will gain experience with the research, writing, and revision process as well as scholarly conversations about original research and writing. The overarching aim of the workshop is to develop research, writing, revision, and scholarly discussion skills as well as community-building in American Indian and Indigenous Studies and professionalization in an increasingly interdisciplinary and global field of study.

AMIN 5920. Topics in American Indian Studies. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Fall & Spring)
Various topics in American Indian studies, depending upon instructor/semester.

AMIN 5991. Graduate Level Directed Studies. (; 1-6 cr. [max 9 cr.] ; A-F or Audit; Every Spring)
Contact department for futher information. prereq: dept consent

American Sign Language (ASL)

ASL 1701. American Sign Language I. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
The first dynamic course of a four-course sequence is designed to prepare the students

to the visual modality of American Sign Language. This course introduces basic grammatical structure and basic vocabulary to develop communicative proficiency and cultural knowledge. The course utilizes a practical approach to teaching vocabulary, grammar, fingerspelling, and cultural aspects through conversational activities. Students will study units 1, 2, 3 and 4 in the Signing Naturally textbook. Community involvement in the ASL/ Deaf community is required outside of class.

ASL 1702. American Sign Language II. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
The second dynamic course of a four-course sequence further acclimates the students to the visual modality of American Sign Language and draws upon previously acquired knowledge in ASL 1701. The course utilizes a practical approach to teaching vocabulary, grammar, fingerspelling, and cultural aspects through conversational activities. In ASL 1702, students? production and comprehension skills continue to develop qualitatively and quantitatively as they are exposed to a greater variety of interaction activities. Students will study units 5, 7, 8, and 9 in the Signing Naturally textbook. Community involvement in the ASL/Deaf community is required outside of class. prereq: 1701 with grade of at least [S or C-] or dept consent

ASL 3001. Cultural and Sociolingual Views within the Deaf Community. (; 3 cr. ; Student Option; Every Fall & Spring)
This course investigates the Deaf community using an ethnocentric view of culture. Students will explore cultural readings and various sources in class discussion using multi-disciplinary approaches: sociological, educational, and linguistic views. Can be taken concurrently with ASL 1701-3704. Class instruction conducted entirely in ASL with an English interpreter.

ASL 3703. American Sign Language III. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
The third dynamic course of a four-course sequence draws upon previously acquired knowledge in ASL 1702. The course includes comprehension and production activities, vocabulary, grammatical structure, fingerspelling, and cultural aspects to further develop communicative proficiency and cultural knowledge. In ASL 3703, students are provided with various conversational opportunities to expand their production and comprehension skills in ASL. Students will study units 10, 11, 12, and 14 in the Signing Naturally textbook. Community involvement in the ASL/Deaf community is required outside of class. prereq: 1702 with grade of at least [S or C-] or dept consent

ASL 3704. American Sign Language IV. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
The final dynamic course of a four-course sequence draws upon previously acquired knowledge in ASL 3703. The course includes comprehension and production activities, vocabulary, grammatical structure, fingerspelling, and cultural aspects to further develop communicative proficiency and cultural knowledge. In ASL 3704, students are provided with various conversational opportunities to expand their production and comprehension skills in ASL. Students will study units 15, 17, 18, 22, and 23 in the Signing Naturally textbooks. Community involvement in the ASL/ Deaf community is required outside of class. prereq: 3703 with grade of at least [S or C-] or dept consent

American Studies (AMST)

AMST 1012. Migrants, Refugees, Citizens, and Exiles: The U.S. on an Immigrant Planet. (CIV; 3 cr. ; Student Option; Every Spring)
Immigration to the United States at various historical periods and across geographical/ political terrains. How immigration, as a national/racial project, is shaped by legal categories and discursive practices based on race, class, gender, and sexuality. Diverse ways marginalized groups produce national/ transnational political practices.

AMST 1401. Comparative Genders and Sexualities. (DSJ; 3 cr. ; Student Option; Every Spring)
Gender/sexual practices/identities within international framework. How such practices/ identities reflect/refract national ideals and express national/international division.

AMST 1511. Americans Abroad: Rethinking Travel, Culture, & Empire. (GP,HIS; 3 cr. ; Student Option; Every Spring)
In this course, we will look at Americans (including ourselves) who travel abroad and what their experiences, both in the present and historically, tell us about how we imagine others and our/their place in the world. What do these experiences tell us about who we are as a people, a culture, and a nation? This course will examine how these experiences have transformed (and continue to transform) Americans and the countries and cultures with which they interact. Indeed, this course challenges students to consider the overall effects that these processes have had on America?s relationship with the rest of the world.

AMST 1914. Woman, Rage, and Politics. (; 3 cr. ; A-F only; Every Fall)
The election of the ?squad? ? Alexandria Ocasio-Cortez, Ilhan Omar, Ayana Pressley, and Rashida Tlaib ? signaled a new era of progressive and diverse political leadership. Yet these women?s unapologetic efforts to demand an accounting on behalf of the American people resulted in vociferous attacks by both conservative and liberal pundits. This backlash has a long history where women in power have been labeled pejoratively as demanding, as vindictive, as power-hungry, as monsters. Angry men are seen as righteous (Brett Kavanaugh), while angry women are ? nasty? (Hillary Clinton). This course explores the relationship between women, rage, and politics. We consider what it means to make and claim space as women of color in politics. We look at how rage ? women?s rage, white rage, rage against women ? gets mobilized to cement and/or combat racism, xenophobia, and misogyny. The course reframes women? s rage as intrepid and redemptive, capable of sparking change during this political moment.

AMST 2011. The United States since September 11. (CIV,HIS; 3 cr. ; Student Option; Every Fall)
How American citizenship and nationhood have changed since 9/11. The event and its aftermath in historical perspective. Political, economic, and military antecedents. How 9/11 has changed relations between the U.S. government, U.S. citizens, immigrants, and international community. How 9/11 has been remembered.

AMST 2031. Chasing the American Dream: Economic Opportunity & Inequality in the U.S.. (DSJ,HIS; 3 cr. ; Student Option; Every Spring)
This course begins by focusing on the historical origins and meanings of the American dream. How did this dream of unlimited opportunity come about? What has it meant in different historical moments and to divergent social groups? And, why does it continue to be such a powerful and compelling idea in the United States and around the world?

AMST 3001. Contemporary Perspectives on Asian America. (DSJ; 3 cr. ; Student Option; Every Spring)
Interdisciplinary overview of Asian American identities. Post-1965 migration/community. History, cultural productions, and concerns of Americans of Chinese, Japanese, Korean, South Asian, Filipino, and Southeast Asian ancestry.

AMST 3003. Public History. (3 cr. [max 4 cr.] ; A-F or Audit; Periodic Fall & Spring)
Interpretations of collective past as produced in public venues, including museum exhibitions, films, theme parks, websites. Intellectual and political issues in history produced for public audiences. Career opportunities.

AMST 3112. Prince, Porn, and Public Space: The Cultural Politics of the Twin Cities in the 1980s. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
This course uses music (especially Prince and the Replacements), debates around pornography/sex, and shifts around access to public space in order to explore the local culture and national importance of the Twin Cities during the 1980s.

AMST 3113W. Global Minnesota: Diversity in the 21st Century. (DSJ,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Diverse cultural (racial, ethnic, class) groups in America. Institutions/processes that shape their relations and create domination, resistance, hybridity, nationalism, racism, alliance. Specific content may vary.

AMST 3114. America in International Perspective. (DSJ; 3 cr. ; Student Option; Every Fall & Spring)
The nature of international cultural exchange. The impact of U.S. cultures and society on

other countries of the world as well as the impact of other cultures and societies on the United States.

AMST 3212. Dissident Sexualities in U.S. History. (3 cr. ; A-F or Audit; Every Fall)
History of sexuality in United States. Emphasizes sexualities that have challenged dominant social/cultural norms. Development of transgender, bisexual, lesbian, gay identities/ communities. Politics of sex across lines of race/ethnicity. Historical debates over controversial practices, including sex work.

AMST 3222H. Honors: American Novel from 1900. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Novels from early 1900s realism through Modernists (e.g., Faulkner, Hemingway, Fitzgerald) to recent writers (e.g., Ellison, Bellow, Erdrich, Pynchon). Stylistic experiments, emergence of voices from under-represented groups. Novelists' responses to a technologically changing society.

AMST 3252W. American Popular Culture and Politics: 1900 to 1940. (CIV,WI,HIS; 3 cr. ; Student Option; Every Fall & Summer)
Historical analysis of how popular arts represent issues of gender, race, consumerism, and citizenship. How popular artists define boundaries of citizenship and public life: inclusions/exclusions in polity and national identity. How popular arts reinforce/ alter political ideologies.

AMST 3253W. American Popular Culture and Politics: 1940 to the Present. (CIV,WI,HIS; 4 cr. ; Student Option; Every Spring & Summer)
Historical analysis of how popular arts represent issues of gender, race, consumerism, and citizenship. How popular artists define boundaries of citizenship and public life: inclusions/exclusions in polity and national identity. How popular arts reinforce/ alter political ideologies.

AMST 3361. Asian Americans and Food. (3 cr. ; Student Option; Periodic Fall)
Asian Americans have always been intimately connected to food practices and institutions in the American imagination. Food is the medium through which Asian American cultural difference, their status as "perpetual foreigners" and the "model minority character" are typically expressed and disseminated. Historically, Asian migration to the United States was fueled by labor needs particularly in the agricultural sector. In addition, Asian labor has been stereotypically linked to food service and preparation such as the ubiquitous Chinese take-out place and more recently, the sushi and Korean fusion joints. This course is an introduction to the interdisciplinary study of food to better understand the historical, social, and cultural aspects of Asian American food preparation, distribution and consumption. Students will investigate the politics and poetics of Asian American foodways by examining social habits, and rituals around food in restaurants, homes and other public venues. The course texts include ethnographic essays, fictional works, memoirs, magazines, and television shows.

AMST 3896. Internship for Academic Credit. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

AMST 3920. Topics in American Studies. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

AMST 3993. Directed Studies. (; 1-9 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

AMST 4101. Gender, Sexuality, and Politics in America. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Ways public and private life intersect through the issues of gender, sexuality, family, politics, and public life; ways in which racial, ethnic, and class divisions have been manifest in the political ideologies affecting private life.

AMST 4301. Workers and Consumers in the Global Economy. (DSJ; 3 cr. ; Student Option; Every Spring)
Impact of global economy on workplaces/ workers in the United states, Mexico, and Caribbean countries. Influence on consumption. Consequences for American culture/character. Effects on U.S./Mexican factory work, service sector, temporary working arrangements, offshore production jobs in Dominican Republic, and professional/ managerial positions.

AMST 4401. Inclusion in Public History and Museums. (3 cr. [max 6 cr.] ; A-F only; Every Spring)
Inclusion in Public History and Museum is designed to engage students in studying the challenges related to the under-representation of communities of color and American Indian Nations in historical organizations and public history graduate programs. The course serves as a foundation into a summer internship program made possible through the Arts and Cultural Heritage Fund. Class sessions will provide a philosophical understanding of museum practice, your summer internship at the Minnesota Historical Society will provide practical experience inside the workings of a major state historical organization. The course is critical part of the History Museum Fellows Program, in identifying and addressing issues of how traditionally marginalized communities are represented in the traditional narrative of history ? both in Minnesota museums and in museums with national audiences. The course and associated Fellowship Program will create a unique opportunity for students to strengthen undergraduate coursework with a one-of-a-kind seminar, explore career interests and receive assistance in exploring options for graduate training as a museum professional.

AMST 4961. Proseminar I. (; 3 cr. ; Student Option; Every Fall)
Classic/contemporary works/problems. Development of American Studies. Idealizing of American past. Challenges of multiculturalism. Contemporary themes. prereq: AmSt jr or AmSt sr or instr consent

AMST 4962W. Second Proseminar in American Studies. (WI; 3 cr. ; Student Option; Every Spring)
Problem related to representative theme, figure, or period. Students research/write senior theses. prereq: AmSt sr or instr consent

AMST 5412. Comparative Indigenous Feminisms. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
The course will examine the relationship between Western feminism and indigenous feminism as well as the interconnections between women of color feminism and indigenous feminism. In addition to exploring how indigenous feminists have theorized from 'the flesh' of their embodied experience of colonialism, the course will also consider how indigenous women are articulating decolonization and the embodiment of autonomy through scholarship, cultural revitalization, and activism.

AMST 5920. Topics in American Studies. (; 1-4 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

Anatomy (ANAT)

ANAT 3001. Human Anatomy. (; 3 cr. ; Student Option; Every Fall)
Anatomical relationships. Function based upon form. Clinical applications. Gross (macroscopic) anatomy, histology (microscopic anatomy). Neuroanatomy (nervous system), embryology (developmental anatomy). prereq: [BIOL 1002W or BIOL 1009 or BIOL 2002 or equiv], at least soph

ANAT 3171. Principles of Human Anatomy Laboratory for Mortuary Science Students. (; 2 cr. ; Student Option; Every Spring)
Human anatomy laboratory for mortuary science students who have had a previous human anatomy lecture course. prereq: Mortuary science student

ANAT 3601. Principles of Human Anatomy. (; 3 cr. ; Student Option; Every Spring)
Anatomical relationships. Function based upon form. Clinical applications. Gross (macroscopic) anatomy, histology (microscopic anatomy). Neuroanatomy (nervous system), embryology (developmental anatomy). prereq: [BIOL 1002 or BIOL 1009 or BIOL 2002 or equiv], [concurrent registration is required (or allowed) in 3602 or concurrent registration is required (or allowed) in 3612], at least soph

ANAT 3602. Principles of Human Anatomy Laboratory. (; 2 cr. ; Student Option; Every Spring)
Complements 3601 or 3611. prereq: 3001 or 3301 or INMD 3001 or 3301 or concurrent registration is required (or allowed) in 3601 or concurrent registration is required (or allowed) in 3611

ANAT 3608H. Principles of Human Anatomy Laboratory for Honors Students. (; 3 cr. ; A-F only; Every Spring)
Lab work required for 3602 or 3612. Additional dissection of human cadavers/related projects. Supplements 3001 or 3601 or 3611. prereq: [concurrent registration is required (or allowed) in 3601 or concurrent registration is required (or allowed) in 3611] or 3001], sophomore, junior or senior, honors

ANAT 3611. Principles of Human Anatomy. (; 3 cr. ; Student Option; Every Spring)
Anatomical relationships. Function based upon form. Clinical applications. Gross (macroscopic) anatomy, histology (microscopic anatomy). Neuroanatomy (nervous system), embryology (developmental anatomy). prereq: [BIOL 1002 or BIOL 1009 or BIOL 2002 or equiv], at least soph; [concurrent registration is required (or allowed) in 3602 or concurrent registration is required (or allowed) in 3612] recommended

ANAT 3612. Principles of Human Anatomy Laboratory. (; 2 cr. ; Student Option; Every Spring)
Complements 3601 or 3611. prereq: 3001 or 3301 or INMD 3001 or 3301 or concurrent registration is required (or allowed) in 3601 or concurrent registration is required (or allowed) in 3611

ANAT 4900. Directed Studies in Anatomy. (; 1-6 cr. [max 18 cr.] ; S-N only; Every Spring)
x prereq: instr consent

ANAT 5095. Advanced Problems in Anatomy. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Exceptional projects that do not easily fit within confines of other ANAT offerings. Examples include but not limited to individual teaching or research projects. prereq: one or more ANAT classes, instr consent

ANAT 5150. Human Gross Anatomy. (5 cr. ; A-F only; Every Fall)
Human cadaveric dissection based on traditional preparation, lab dissection, review sections, radiographic analysis, clinical correlations. Taught by regions. Extremities, torso, head/neck. Assessment by mid-semester/final written/practical examinations. prereq: instr consent, For Medical Students, or Graduate students enrolled in an appropriate graduate program as determined by instructor.

ANAT 5525. Anatomy and Physiology of the Pelvis and Urinary System. (; 1-2 cr. ; A-F only; Every Spring)
Two-day intensive course. Pelvis, perineum, and urinary system with cadaveric dissection. Structure/function of pelvic and urinary organs, including common dysfunction and pathophysiology. Laboratory dissections, including kidneys, ureters, urinary bladder, pelvic viscera and perineum (male or female), pelvic floor, vascular and nervous structures. Grand rounds section. prereq: One undergrad anatomy course, one undergrad physiology course, instr consent

ANAT 5999. Head and Neck Anatomy. (; 3 cr. ; A-F or Audit; Every Summer)
N/A prereq: instr consent

Anesthesiology (ANES)

ANES 5587. Adv Clinical Physiology I for Nurse Anesthetists. (; 3 cr. ; A-F or Audit; Every Fall)
Cellular mechanisms underlying systems physiology. Cellular physiology, physiology of excitable tissues, renal physiology, cardiovascular physiology, hemostasis.

ANES 5588. Advanced Clinical Physiology II for Nurse Anesthetists. (; 3 cr. ; A-F or Audit; Every Spring)
Respiratory physiology, acid-base physiology, gastrointestinal physiology, metabolism, endocrinology, reproductive physiology, physiology of pregnancy/labor. prereq: Advanced Clinical Physiology I for Nurse Anesthetists

ANES 5686. Chemistry and Physics for Nurse Anesthetists. (; 3 cr. ; A-F or Audit; Every Summer)
Chemical equilibrium, organic chemistry, physics of fluids/gases, anesthetic applications. prereq: General chemistry or instr consent

Animal Science (ANSC)

ANSC 1001. Orientation to Animal Science. (1 cr. ; A-F or Audit; Every Fall)
Current issues, career planning, professional development. Interviews with faculty and other resource persons.

ANSC 1011. Animals and Society. (CIV; 3 cr. ; Student Option; Every Fall)
This online course is designed for anyone interested in the ways in which we as a human society interact with, affect and are affected by non-human animals. Students will gain a broad understanding of the major ways in which humans use animals in contemporary society, including as food, as companions, as research subjects, and as entertainment. Other topics will include: social and ethical issues concerning animal use, the human-animal bond, animals in culture, and animals and the law.

ANSC 1101. Introductory Animal Science. (4 cr. ; Student Option; Every Fall & Spring)
Fundamental concepts of animal breeding, physiology, nutrition, and management as they apply to the production of beef, dairy, horses, poultry, sheep, swine, and other livestock. Fall term class open only to ANSC majors. Spring term class open to all majors.

ANSC 1201. Backyard Chickens - Science and Practice. (; 3 cr. ; Student Option; Every Spring)
Backyard Chickens - Science and Practice is an online course designed to meet the needs of students interested in understanding chickens in general, and for those who engage or are planning to engage in small scale farming of chickens. This course, expanded over 6 modules; (1) Basic biology and behavior (2) Selection (3) Housing (4) Nutrition (5) Management and (6) Diseases as it relates to chickens, will help the students understand the basic science of rearing chickens. Each of the six modules encompasses pertinent short video or PowerPoint lectures that provide fundamental and applied information on backyard chicken rearing.

ANSC 1205. Animal Handling - Livestock. (1 cr. ; A-F only; Every Fall & Spring)
Students will learn how to handle and restrain animals safely. Cattle, sheep, and pigs in the Animal Science Department?s St. Paul animal units are the animals primarily worked with. Students will perform common animal husbandry techniques on these animals. Proper techniques that promote animal welfare will be emphasized. This course is meant for Animal Science freshmen students that have minimal experience working with livestock.

ANSC 1403. Companion Animal Nutrition and Care. (; 3 cr. ; Student Option; Every Fall & Spring)
This course is designed for individuals having no prior training with animals or nutrition but have interest in caring for and understanding the contemporary importance of companion animals. Emphasis will be on nutrition of healthy animals and the various factors that play a role in feeding an animal adequately. These factors include animal behavior, environmental conditions, food type, and availability. The course will emphasize basic principles of nutrition. The target audience of this course is all undergraduate students interested in nutrition and care of companion animals. The course will focus on companion animals, but not exclusively dogs and cats.

ANSC 1480. Topics in Animal Science. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Various topics

ANSC 1511. Food Animal Products for Consumers. (; 3 cr. ; Student Option; Every Fall)
Introduction to the compositional variation, processing, selection, storage, cookery, palatability, nutritional value, and safety of red meat, poultry, fish, and dairy products.

ANSC 1701. Historical Influence of the Horse on Society. (HIS; 3 cr. ; Student Option; Every Fall)
Concepts of historical inquiry using the powerful/changing relationship between Man and horse. Students function as historians: framing questions, searching for appropriate sources, developing explanation model with reasoned arguments, and finally, write/defend interpretation.

ANSC 1901. The journey of food in your body - digestive physiology. (; 3 cr. ; Student Option; Every Fall)
In this course we will review how the digestive system works, and how nutrients are taken

up from food by our bodies. We will discuss fast and slow food, diets, bugs and poop. We will run some fact-checking to popular internet claims and guide you on how to distinguish well-supported information from bogus. You will also learn to search and read scientific papers and the basics of technical writing in the field.

ANSC 2011. Dairy Cattle Judging. (; 2 cr. ; Student Option; Every Fall)
Evaluation of dairy animals on the basis of physical appearance, including classes of heifers and cows from the six major dairy breeds. Held in conjunction with the Minnesota State Fair. Training in oral reasons. prereq: instr consent

ANSC 2012. Livestock and Carcass Evaluation. (; 3 cr. ; Student Option; Every Spring)
Evaluation of cattle, swine, and sheep. Breeding stock evaluated on live appraisal, performance records, and breeding values. Market animals evaluated, graded, and priced on physical appearance followed by evaluation and grading of their carcasses.

ANSC 2013. Beginning Livestock Judging. (; 2 cr. ; Student Option; Fall Odd Year)
Visual evaluation of beef cattle, swine, and sheep for type, muscling, degree of finish, structure, and soundness. Short oral presentations. Preparation for collegiate livestock judging competition.

ANSC 2015. Animal Welfare Science and Ethics. (3 cr. ; A-F only; Every Spring)
This multidisciplinary course helps students develop an intellectual framework for understanding and interpreting issues involving animal welfare and ethics of animal use in agriculture, science and society.

ANSC 2016. Introduction to Applied Animal Behavior. (3 cr. ; A-F only; Every Spring)
Basic concepts and applications of animal behavior within the contexts of human use. Emphasis on domesticated species, but other species within captive environments also examined.

ANSC 2055. Horse Management. (; 2 cr. ; Student Option; Every Fall)
This course is offered online (semi-self paced) and provides an introduction to equine-related careers, the equine industry, and horse breeds and behavior. Current events will be discussed including topics such as horse slaughter and unwanted horses. Students will learn about the importance of bodyweight estimation, body condition scoring, hay analysis, plants poisonous to horses, liability, insurance options, as well as feeding, pasture, manure, and facility management. Equine health care will be discussed including colic, hoof care, vaccinations, deworming, and the role of genetics. Each week, students will participate in a course discussion, quiz, or exam.

ANSC 2056. Horse Management Practicum. (; 2 cr. ; Student Option; Every Fall)
Best management practices. Daily care (in small groups, weekends included) of horses. Volunteer day at local equine nonprofit. Applied equine management research project. Two group presentations. prereq: 2055 or concurrent registration is required (or allowed) in 2055

ANSC 2401. Animal Nutrition. (; 3 cr. ; Student Option; Every Fall)
Classification/function of nutrients. Use of nutrients for body maintenance, growth, egg production, gestation, and lactation. Comparative study of digestive systems of farm animal species.

ANSC 3007. Equine Nutrition. (; 3 cr. ; Student Option; Every Spring)
Principles of nutrition. Emphasizes unique aspects of equine nutrition. Nutritional needs of healthy animals. Factors in feeding. Animal behavior, growth/development, physiological status, environmental conditions, food type, availability. How physiology of horse's gastrointestinal tract, utilization of feedstuffs, and horse's nutritional requirements interrelate. Balanced rations, nutritional related ailments. Pasture management, forage selection, use of dietary feed additives/enhancers. prereq: 2401

ANSC 3011. Statistics for Animal Science. (; 4 cr. ; Student Option; Every Fall & Spring)
Basic statistical concepts. Develop statistical reasoning/critical thinking skills. Descriptive statistics, probability, sampling and sampling distributions, hypothesis testing, experimental design, linear correlation, linear regression and multiple regression. How to make sound arguments/decisions based on statistics when reviewing news articles or scientific publications with statistical content. Explore/ draw conclusions from data using a basic statistical software package.

ANSC 3015. Animal Welfare Judging and Assessment. (3 cr. ; Student Option; Every Fall)
Advanced application of animal welfare science toward the assessment of real-life scenarios in agriculture, companion, and exotic animals. Top students will compete on the UMN team at the Intercollegiate Animal Welfare Judging and Assessment Competition held in November each year.

ANSC 3092. Undergraduate Research in Animal Science. (; 1-3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Students conduct research project under supervision of faculty member.

ANSC 3093. Directed Study. (1-4 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Directed Study: A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

ANSC 3094. Directed Research. (1-4 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

ANSC 3141. Advanced Dairy Judging. (; 1 cr. ; Student Option; Every Spring)
Training in presentation of oral reasons in dairy cattle judging. Selected students from this course participate in fall intercollegiate dairy judging contest. prereq: 2011 or instr consent

ANSC 3142. Advanced Livestock Judging. (; 2 cr. ; Student Option; Fall Even Year)
Visual evaluation of beef cattle, swine, and sheep for muscling, finish, structure, and soundness. Use of production (growth and reproduction) records in evaluation. Oral presentations. Preparation for national collegiate livestock judging contest. prereq: instructor consent

ANSC 3203W. Environment, Global Food Production, and the Citizen. (GP,WI; 3 cr. ; Student Option; Every Spring)
Ecological/ethical concerns of food production systems in global agriculture: past, present, and future. Underlying ethical positions about how agroecosystems should be configured. Interactive learning using decision cases, discussions, videos, other media.

ANSC 3221. Animal Breeding. (; 4 cr. ; Student Option; Every Fall)
Application of qualitative and quantitative genetics to animal breeding. Concepts of livestock improvement through selection and mating programs.

ANSC 3301. Human and Animal Physiology. (3 cr. ; Student Option; Every Fall & Spring)
Functions of major systems in mammals. Nervous system, muscles, cardiovascular system, respiration, renal system. Endocrinology/metabolism. Blood, immunology, reproduction. prereq: Must have taken a Biology and Chemistry course.

ANSC 3302. Human and Animal Physiology Laboratory. (; 1 cr. ; Student Option; Every Fall & Spring)
Companion course to 3301. Physiological principles are demonstrated using active learning approaches. Nervous system, muscles, cardiovascular, respiration, renal, endocrinology/metabolism, blood, immunology, reproduction. prereq: 3301 or concurrent registration is required (or allowed) in 3301

ANSC 3305. Reproductive Biology in Health and Disease. (; 4 cr. ; Student Option; Every Fall)
Reproductive organ functions, fertilization, estrous cycle and endocrine control, reproductive efficiency, problems/principles of artificial insemination. Anatomy, physiology, biochemistry of mammary gland. Mammary growth, initiation/maintenance of lactation, milk

synthesis, factors influencing lactation curve. prereq: Biol 1009 or equiv

ANSC 3307. Artificial Insemination Techniques. (; 1 cr. ; S-N or Audit; Every Spring)
Hands-on training/techniques of artificial insemination at an off-campus laboratory setting. Techniques of AI and semen handling. Criteria for selection of bulls. prereq: instr consent

ANSC 3403. Companion Animal Hot Button Issues. (; 3 cr. ; Student Option; Every Fall)
Various issues that affect companion animals in our society. Students debate pros/cons of each issue and formalize their own opinions based on information presented by debate teams.

ANSC 3480. Topics in Animal Science. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Various topics

ANSC 3509. Animal Biotechnology. (BIOL,TS; 4 cr. ; Student Option; Every Fall)
ANSC 3509 is a course for undergraduates seeking a broad understanding of animal biotechnology in a single semester. The course covers the major concepts and principles of modern animal biotechnology. Topics include: genes and genomes, recombinant DNA technology, proteins as products, DNA fingerprinting and forensic analysis, bioremediation, aquatic biotechnology, medical biotechnology, and bioethics as it pertains to biotechnology. The laboratory component will focus on teaching molecular techniques necessary to gather DNA profiling data of scarlet macaws in southwest Belize. The Scarlet Macaw Protection Program is a conservation initiative between the Wildlife Institute (WI), the Belize Wildlife & Referral Clinic (BWRC) and Friends for Conservation & Development (FCD). The purpose of the Scarlet Macaw Protection Program is to support a specific scarlet macaw population in the Chiquibul Forest, which is under heavy poaching threat. The conservation strategy is to remove chicks from nest sites that are under heaviest threat of poaching, and for which security provision is most prohibitive. Chicks are reared with the aim to be reintroduced into the wild. The Animal Biotechnology laboratory will use DNA isolated from feathers gathered at scarlet macaw nesting sites and housing facilities in Belize. The DNA will be used to genotype scarlet macaws to establish parentage, genealogy and nesting/breeding behavior.

ANSC 3511. Animal Growth and Development. (; 3 cr. ; Student Option; Every Spring)
Principles of animal growth. Interaction of nutrition, hormones, exercise, heredity, and disease in regulating growth. prereq: College-level biology course

ANSC 3555. Applied Livestock and Poultry Microbiology. (2 cr. ; A-F only; Spring Even Year)
This applied microbiology course is intended to provide theoretical basis and hands-on experience to students on major pathogenic bacteria colonizing livestock and domestic poultry. This course will provide skills to the students who seriously consider farm animal and poultry microbiology research and/or teaching in their careers. Pathogenic bacteria in livestock and poultry such as Listeria monocytogenes, Escherichia coli O157: H7, and Salmonella, fungal microorganisms (Aspergillus), and beneficial microorganisms such as Lactobacillus, will be discussed. In addition, the course will introduce feed testing methods (Bacteriological Analytical Manual (BAM) methodology), common antibacterials/ antibiotics used for decontamination and disinfection, and the emerging alternatives to antibiotics with a perspective on bacterial antibiotic resistance. In a flipped class room format, the students will gather necessary information provided by the instructor, listen to short lectures on the methods and mechanisms, participate in demonstrations, and apply it in a typical BSL2 laboratory set up under supervision. All students should undergo BSL2 training prior to enrollment. Online training counts to approximately 5-6 hours. Not more than 4 students will be allowed for each session due to BSL2 pathogenic microbiology space restriction, access to RAR facilities, and some non-conventional microbiological methods. Special health conditions, pregnancy, and immunocompromised situations must be consulted with the instructor prior to enrollment. The students must obtain clearance from ROHC for their tetanus vaccination status. prereq: Instructor Permission

ANSC 3609. Business Planning for Animal Enterprises. (; 2 cr. ; Student Option; Every Fall)
Systems approach to decision making and problem solving in production enterprises. Planning, long range goal setting, production analysis, risk analysis, and cost-benefit analysis. Quality-of-life issues.

ANSC 3801. Livestock Merchandising. (; 3 cr. ; Student Option; Spring Odd Year)
Promotion/merchandising of purebred livestock. Hands-on training in advertising, livestock photography, showing/fitting, sale organization. Field trips to seed stock operations/auctions. Presentations by industry and breed association leaders. Students conduct annual sale. prereq: Jr or sr or instr consent

ANSC 4009W. Undergraduate Research Thesis. (WI; 1-6 cr. [max 12 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Usually one full year. Research/thesis experience under supervision of CFANS faculty member. Written bound thesis, oral presentation of research results. prereq: Jr or sr major in AnSc, instr consent

ANSC 4011. Dairy Cattle Genetics. (3 cr. ; Student Option; Every Spring)
Quantitative genetic principles of breeding dairy cattle. Evaluation of males, females. Systems of mating. Rates of genetic improvement with/ without AI. prereq: (prereq 3221, previous or current registration in 4604, at least junior status)

ANSC 4092. Special Problems in Animal Science. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study in an area of animal science, under supervision of faculty member. prereq: instr consent

ANSC 4093. Tutorial in Animal Science. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Informally structured to encourage in-depth study of specific disciplines in animal science. Pertinent readings; preparation of written essays of high quality required. prereq: instr consent

ANSC 4096. Professional Experience Program: Internship. (1-3 cr. [max 6 cr.] ; S-N only; Every Fall, Spring & Summer)
Supervised professional experience in animal industries and farm enterprise systems. Various aspects of the industry and related fields. Evaluative reports. Consultations with faculty advisers and employers. prereq: CFANS undergrad, instr consent, agreement form

ANSC 4099. Special Workshop in Animal Science. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Independent study in an area of animal science, under supervision of faculty member. prereq: instr consent

ANSC 4305. Companion & Wild Species Reproduction. (; 2 cr. ; A-F only; Every Spring)
Reproductive physiology specific to domesticated companion canine and feline species as well as avian species. Management of breeding and reproductive diseases in companion species as well as conservation management in wild species. prereq: ANSC 3305

ANSC 4401. Swine Nutrition. (; 3 cr. ; Student Option; Every Fall)
A comprehensive review of major considerations in providing optimum, cost-effective nutrition to swine in all stages of production. prereq: 2401, 3511 recommended

ANSC 4403. Ruminant Nutrition of Production & Exotic Animals. (; 3 cr. ; Student Option; Every Spring)
This is a hybrid course with approximately 75% of material delivered via on-line lectures. Students will meet once per week for a in-class hands-on activity or a guest lecture. Species focus will include dairy, beef, small ruminants, deer, buffalo and zoo ruminants. Topics include digestive tract physiology, microbiology of the rumen, nutrient requirements, nutrient utilization, nutrient content of feedstuffs, diet formulation and feeding challenges.

ANSC 4404. Applied Dairy Nutrition. (; 2 cr. ; Student Option; Periodic Fall)
Application of nutrition principles to dairy cow nutrition. Nutrient requirements of dairy cows, feed ingredient selection/usage, formulation/ evaluation of dairy cow rations using computer programs. Case study analysis of feeding programs used on dairy farms. prereq: AnSc 4403 recommended

ANSC 4601. Pork Production Systems Management. (4 cr. ; Student Option; Fall Odd Year)
IInterrelationships of business, marketing, and biological performance of pigs in various types of production systems. prereq: 2401; 3221 recommended

ANSC 4602. Sheep Production Systems Management. (; 4 cr. ; Student Option; Every Spring)
Nutrition, management, genetics, reproduction, health. Application of production records, selection, and marketing technology. Current research. Social concerns, consumer affairs, industry practices. Field trips to sheep farms and related industries.

ANSC 4603. Beef Production Systems Management. (; 4 cr. ; Student Option; Every Fall)
How to resolve problems and manage cow-calf, stocker, or feedlot operations. Segments of beef industry, challenges. Nutrition, reproduction, genetics, and health in beef cattle production. Students evaluate a beef cattle enterprise and contribute in marketing, selection, reproduction, nutrition, or health management. prereq: concurrent registration is required (or allowed) in 4613

ANSC 4604. Dairy Production Systems Management. (4 cr. ; Student Option; Every Spring)
Practical applications of principles of animal breeding, nutrition, physiology, reproduction, housing, and economics in a problem solving context. Decision-cases, farm visits, field diagnostic techniques labs. prereq: Pre-req: AnSc 1101, AnSc 2401 Concurrent registration is not allowed in 4614

ANSC 4613. Advanced Beef Production Systems Management. (; 2 cr. ; Student Option; Every Fall)
Half semester course. Student enterprise-analysis teams evaluate a beef cattle enterprise and solve problems in marketing, selection, reproduction, nutrition, or health management. prereq: 4603

ANSC 4614. Advanced Dairy Production Systems Management. (; 4 cr. ; Student Option; Every Spring)
Practical application of electronic tools for 21st century dairy consultant. Data collection, organization, analysis, interpretation of dairy production/health data. prereq: 4604

ANSC 5015. Animal Welfare Science and Ethics. (3 cr. ; A-F only; Every Spring)
This multidisciplinary course helps students develop an intellectual framework for understanding and interpreting issues involving animal welfare and ethics of animal use in agriculture, science and society.

ANSC 5025. Gut Microbiome Systems. (3 cr. ; A-F only; Every Fall)
This course is primarily focused on providing conceptual and methodological tools to understand how diet and the gut microbiome converge to impact the physiological landscape of animals and humans, considering diet, host and microbiome as one highly integrated system. To that end, the course relies on concepts of data analysis, gastrointestinal microbiology, the breadth of scientific literature produced up to date and hands on experiences to immerse attendants in the ever-growing microbiome field and open them to consider a microbiome lens to address different research questions in their respective fields. The course emphasizes three main conceptual areas: 1. Compositional and functional organization of microbial communities in the mammalian gut: From cells to functional communities. 2. Dietary drivers of the mammalian gut microbiome: Nutritional Ecology in the mammalian gut 3. Host-microbiome interactions: Physiological impact of the mammalian gut microbiome Rather than memorizing these concepts, the course emphasizes the need to apply them to real life issues in animal and human nutrition and health. As such, recognizing these conceptual areas in context, and using them for problem solving in their respective research areas is the ultimate goal of the course. Undergraduate level course in microbiology and physiology are suggested to enroll in this course. Also, previous completion of statistics courses and familiarity with the R statistical interface and command line are recommended.

ANSC 5035. Animal Welfare Judging and Assessment. (3 cr. ; A-F only; Every Fall)
Advanced application of animal welfare science toward the assessment of real-life scenarios in agriculture, companion, and exotic animals. Top students will compete on the UMN team at the Intercollegiate Animal Welfare Judging and Assessment Competition held in November each year.

ANSC 5091. Research Proposals: From Ideas to Strategic Plans. (WI; 3 cr. ; Student Option; Every Fall & Spring)
You have a great research idea, now what? How do you turn your idea into a proposal? It has been said paraphrasing Edison, that innovation is one percent inspiration, ninety-nice percent perspiration. In this course, we will start with and inspiring idea and sweat our way to develop a research proposal. The students will go through a step-by-step process that starts choosing and defining a research idea, then proceeding to do literature reviews and to the development of hypothesis, aims, objectives and a research strategy. The aim of this course is to provide students with tools to understand the structure of scientific reports and proposals, literature searches and basic data interpretation. The student will learn about different research approaches and how to achieve consistency in their research projects. We will guide students in how to begin and develop a written research proposal that will satisfy the requirements of their advisers, institution and funding organizations. prereq: There are no prerequisites, however, having taken ANSC 3011 Statistics for Animal Science is desirable.

ANSC 5099. Special Workshop in Animal Science. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Spring)
Topics vary. See Class Schedule or department. Topics may use guest lectures/ experts. prereq: instr consent

ANSC 5200. Statistical Genetics and Genomics. (4 cr. ; Student Option; Fall Even Year)
Gene discovery. Genomic selection. Data analysis. Phenotypes/DNA markers. Parametric/non parametric linkage analysis. Mapping quantitative trait loci (QTL). Parentage testing. prereq: [Stat 3021 or equiv], [Biol 4003 or equiv]

ANSC 5305. Companion & Wild Species Reproduction. (; 2 cr. ; A-F only; Every Spring)
Principles of reproductive physiology specific to domesticated companion canine and feline species as well as avian species. These principles discussed in the context of the management of breeding and reproductive diseases in companion species as well as conservation management in wild species. prereq: instr consent

ANSC 5555. Applied Livestock and Poultry Microbiology. (2 cr. ; A-F only; Spring Even Year)
This applied microbiology course is intended to provide theoretical basis and hands-on experience to students on major pathogenic bacteria colonizing livestock and domestic poultry. This course will provide skills to the students who seriously consider farm animal and poultry microbiology research and/or teaching in their careers. Pathogenic bacteria in livestock and poultry such as Listeria monocytogenes, Escherichia coli O157: H7, and Salmonella, fungal microorganisms (Aspergillus), and beneficial microorganisms such as Lactobacillus, will be discussed. In addition, the course will introduce feed testing methods (Bacteriological Analytical Manual (BAM) methodology), common antibacterials/ antibiotics used for decontamination and disinfection, and the emerging alternatives to antibiotics with a perspective on bacterial antibiotic resistance. In a flipped class room format, the students will gather necessary information provided by the instructor, listen to short lectures on the methods and mechanisms, participate in demonstrations, and apply it in a typical BSL2 laboratory set up under supervision. All students should undergo BSL2 training prior to enrollment. Online training counts to approximately 5-6 hours. Not more than 4 students will be allowed for each session due to BSL2 pathogenic microbiology space restriction, access to RAR facilities, and some non-conventional microbiological methods. Special health conditions, pregnancy, and immunocompromised situations must be consulted with the instructor prior to enrollment. The students must obtain clearance from ROHC for their tetanus vaccination status.

ANSC 5625. Nutritional Biochemistry. (; 3 cr. ; Student Option; Every Fall)
Overview of biochemical molecules and pathways important in nutritional events. prereq: BIOC 3021 or instr consent

ANSC 5626. Nutritional Physiology. (; 3 cr. ; A-F only; Every Spring)
Whole body macronutrient metabolism as it relates to etiology of metabolic diseases. Signaling between tissues to control

homeostasis. How dysregulation of crosstalk can lead to metabolic diseases. How diet, exercise, or starvation impact metabolism. Regulation of food intake and energy expenditure. Designing/analyzing/interpreting research data.

ANSC 5702. Cell Physiology. (; 4 cr. ; A-F only; Every Fall)
Cell Physiology involves the study of control mechanisms involved in maintaining homeostasis with respect to a variety of parameters including regulation of pH, volume, nutrient content, intracellular electrolyte composition, membrane potential, receptor signaling and aspects of intercellular communication. The first half of this team-taught course is organized in a partially on-line format where students learn from on-line materials and then take an on-line quiz each week before meeting with the instructor to review key concepts in class. The second half of the course is presented in lecture format. Student evaluation is based on quiz scores, in-class exams and graded problem sets.

Anthropology (ANTH)

ANTH 1001. Human Evolution. (BIOL; 4 cr. ; Student Option; Every Fall, Spring & Summer)
The principles of evolutionary theory, behavioral biology, comparative anatomy, and Paleolithic archaeology are used to reconstruct the major events in human evolution. The course allows us to understand the behavior of our ancestors as well as ourselves.

ANTH 1002. Cultural Heritage and Archaeology. (; 4 cr. ; Student Option; Every Fall)
Archaeology/archaeological epistemology as scholarly research, cultural heritage, and subject of competing claims. Students compare media about archaeology for different interpretations of the past.

ANTH 1003V. Understanding Cultures: Honors. (GP,WI,SOCS; 4 cr. ; A-F only; Every Fall & Spring)
Introduction to social/cultural anthropology. Comparative study of societies/cultures around world. Adaptive strategies. Economic processes. Kinship, marriage, gender. Social stratification. Politics/conflicts. Religion/ritual. Personality/Culture. prereq: Honors

ANTH 1003W. Understanding Cultures. (GP,WI,SOCS; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to social and cultural anthropology. Comparative study of societies and cultures around the world. Topics include adaptive strategies; economic processes; kinship, marriage, and gender; social stratification; politics and conflicts; religion and ritual; personality and culture.

ANTH 1911W. Changing Human Adaptations. (ENV,WI; 3 cr. ; A-F only; Periodic Fall & Spring)
Humans, like other species, are integral to the ecology of the earth. We display a series of adaptations that allow us to eat, grow, find mates, and raise offspring. Do humans have a fundamental ecological niche? How have humans adapted to climate change over time and space, for example, as we spread out of Africa, into Eurasia and then into the Americas? We consider how climate, environmental, and habitat reconstructions are made by scientists; and how diets, food acquisition strategies, geographic distribution, and social structure are known to paleoanthropologists. We consider changes in the human gut, tooth size, body size, and social behaviors. We also explore how long humans have made a significant impact on the environment, via hunting and overhunting, planting food, population growth and greenhouse gas emissions. When did the "Anthropocene" begin?

ANTH 1914W. From "O Brother Where Art Thou?" to "12 Years a Slave": American Cinema and American Roots Music. (DSJ,WI; 3 cr. ; A-F only; Periodic Fall)
This seminar focuses on the ways in which popular culture (movies and other visual media) presents and comments upon southern American "roots" music. Although the music had deep roots in the American past, it also underwent dramatic transformations with the coming of industrial capitalism to the South and as a result of the commercial recording process itself, especially in the 1920s. This music continues to shape popular music today, and it continues to be a focus of cinematic attention. In this seminar we will focus on three sets of issues. First, we will consider the music in terms of the historical contexts that shaped it. Second, we will consider the question of how popular cinema and documentary films interpret (in sometimes problematic ways) this music, and what the politics of those representations might be. Third, we will attempt to understand musical genres and the movies in which they are featured in relation to the production of race, class and gender, and the experience of inequality in the United States.

ANTH 2001V. Being Human - A Comprehensive Introduction to the Four Fields of Anthropology. (WI; 3 cr. ; A-F only; Periodic Fall & Spring)
Whenever you take a trip, do you people-watch and wonder about these interesting humans that surround you? Why they look the way they do? How they know how to behave in different situations? Why they eat really weird foods? Anthropology answers these questions using a holistic, bio-cultural framework. In this course we will explore the relationship between human bodies and human culture, using the five fields of anthropological inquiry: biological anthropology, archaeology, cultural anthropology, linguistics and applied anthropology. We will answer questions such as: How and why did our physiques evolve into the form we see today? What cultural and environmental influences affect human variation throughout the world? What effects do religion, law, and society have on the way people think about, discuss, and use their bodies today? How do we learn about our past from examining human remains? How and why do differences in language use define us as persons? How can anthropological insight lead to great careers in law, medicine, business and public service?

ANTH 2006. Humans and Aliens: Learning Anthropology through Science Fiction. (GP; 3 cr. ; Student Option; Every Spring)
Pairs anthropology texts with science fiction stories to illustrate how our future is more dependent on how humanity works anthropologically than what next technological invention has to offer.

ANTH 3001. Introduction to Archaeology. (SOCS; 4 cr. ; Student Option; Fall Even, Spring Odd Year)
The fundamentals of fieldwork, laboratory analysis, and interpretation in archaeology. How field and laboratory research are designed and implemented, and how results are interpreted.

ANTH 3002. Sex, Evolution, and Behavior: Examining Human Evolutionary Biology. (; 4 cr. ; A-F or Audit; Every Spring)
Methods/theories used to understand humans in an evolutionary framework. What can be known only, or primarily, form an evolutionary perspective. How evolutionary biology of humans might lead to better evolutionary theory. How physiology, development, behavior, and ecology coordinate/co-evolve in humans.

ANTH 3003. Cultural Anthropology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Topics vary. Field research. Politics of ethnographic knowledge. Marxist/feminist theories of culture. Culture, language, and discourse. Psychological anthropology. Culture/ transnational processes.

ANTH 3004. Great Controversies in Anthropology. (GP,SOCS; 3 cr. ; A-F or Audit; Every Spring)
Notable controversies in anthropology: Is human "reason" the same in all cultures? What makes up evidence/truth when we study people? Whose "voices" should be heard? Should anthropologists support contemporary attempts at economic "development"? Is it possible to agree on a set of universal individual or cultural rights? Can we make qualitative judgments about cultures? What civic/political responsibilities does the anthropologist have at home and with the people whom she or he studies? In-class debates.

ANTH 3005W. Language, Culture, and Power. (DSJ,WI,SOCS; 4 cr. ; Student Option; Every Spring)
Studying language as a social practice, students transcribe and analyze conversation they record themselves, and consider issues of identity and social power in daily talk.

ANTH 3006. Humans and Aliens: Learning Anthropology through Science Fiction. (GP; 3 cr. ; Student Option; Every Spring)
Pairs anthropology texts with science fiction stories to illustrate how our future is more dependent on how humanity works anthropologically than what next technological invention has to offer.

ANTH 3008. Introduction to Flintknapping. (; 3 cr. ; A-F or Audit;)
Hands-on experience in replication of prehistoric stone tools, as basis for archaeological analysis and as art form in itself.

ANTH 3009. Prehistoric Pathways to World Civilizations. (HIS; 3 cr. ; Student Option; Every Spring)
How did complex urban societies first develop? This course addresses this question in ten regions of the world including Maya Mesoamerica, Inca South America, Sumerian Near East, Shang Civilization in East Asia, and early Greece and Rome.

ANTH 3015W. Biology, Evolution, and Cultural Development of Language & Music. (SOCS,WI; 3 cr. ; Student Option; Every Spring)
Language is the most human form of behavior, and the investigation of the ways language and culture interact is one of the most important aspects of the study of human beings. The most fascinating problem in this study is how language itself may have evolved as the result of the interaction between biological and cultural development of the human species. In this course we will consider the development of the brain, the relationship between early hominins, including Neanderthals and Modern Humans, and such questions as the role of gossip and music in the development of language.

ANTH 3021W. Anthropology of the Middle East. (GP,WI,SOCS; 3 cr. ; A-F or Audit; Fall Even Year)
Anthropological methods of analyzing/ interpreting Middle Eastern cultures/societies.

ANTH 3022W. Anthropology of Dreaming and Myth. (WI; 3 cr. ; A-F or Audit; Spring Odd Year)
What is universal in dreaming/myth, how they vary in different cultures. Influence of dreams on myths. Appearance of folk narratives and cultural symbols in dreams. Relationship between individual and culture. Symbolism, metaphor, metonymy, other tropes common to dreaming/myth. Underlying psychological processes. Papers by anthropologists, case studies, cultural examples.

ANTH 3023. Culture and Society of India. (GP,SOCS; 3 cr. ; Student Option; Spring Even Year)
Contemporary society and culture in South Asia from an anthropological perspective with reference to nationalism; postcolonial identities; media and public culture; gender, kinship and politics; religion; ethnicity; and the Indian diaspora.

ANTH 3027W. Archaeology of Prehistoric Europe. (HIS,WI; 3 cr. ; Student Option; Every Fall)
How archaeologists analyze/interpret artifacts to develop knowledge about formation of European society, from earliest evidence of human occupation to Roman period.

ANTH 3028. Introduction to Historical Archaeology. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Emphasizes research approaches. Documentary research, oral history, probate inventories/acculturation, integration of documents/archaeological data, analysis of community patterning, social analysis of architecture, foodways, artifact identification, mean ceramic dating, industrial archaeology, estimation of social status with cemetery data, sampling, report writing.

ANTH 3034W. Roots Music in American Culture and Society. (DSJ,WI; 3 cr. ; Student Option; Periodic Fall)
This course focuses on aspects of southern American vernacular music that came to public attention in the 1920s and 1930s as commercial recordings and field recordings of rural music became available. Although the music had deep roots in the American past, it also underwent dramatic transformations as a result of the coming of industrial capitalism to the south and as a result of the commercial recording process itself. This music continues to profoundly shape popular music today. We will try to consider as many questions as possible during the semester, but we will focus especially on three sets of issues. First, we will consider the music in terms of the historical contexts that shaped it. Second, we will consider the cultural politics surrounding the music as we focus on question of how historical narratives, popular media and popular perceptions, and scholarly works represent and interpret (in often problematic ways) certain genres of popular music and what the politics of those representations might be; and we will consider also how we listen to ?roots music,? how our listening is shaped by contemporary social and political circumstances. Third, we will attempt to understand musical genres in relation to the production of race and class and the experience of racial and class inequalities in the United States, and this may in turn prompt us to think critically about the idea of musical genre itself.

ANTH 3035. Anthropologies of Death. (GP,SOCS; 3 cr. ; A-F or Audit; Every Spring)
Anthropological perspectives on death. Diverse understandings of afterlife, cultural variations in death ritual, secularization of death in modern era, management of death in medicine, cultural shifts/conflicts in what constitutes good or natural death.

ANTH 3036. The Body in Society. (; 3 cr. ; Student Option; Spring Odd Year)
Body-related practices throughout the world. Readings, documentaries, mass media.

ANTH 3043. Art, Aesthetics and Anthropology. (; 3 cr. ; Student Option; Summer Odd Year)
The relationship of art to culture from multiple perspectives including art as a cultural system; the cultural context of art production; the role of the artist in different cultures; methodological considerations in the interpretation of art across cultural boundaries.

ANTH 3046W. Romance and Culture. (GP,WI; 3 cr. ; A-F only; Every Spring)
Romance, aspects of this kind of love relationships from different perspectives in social/biological sciences. Draws on cross-cultural materials.

ANTH 3047W. Anthropology of Sex, Gender and Sexuality. (WI; 3 cr. ; Student Option; Periodic Spring)
This course explores the concepts of "sex," "gender," and "sexuality" through the scholarship of feminist anthropology, queer anthropology, and their antecedents. Students will read ethnographies that grapple with the contingent and shifting formations of these social constructions - when they emerge, disentangle, re-entangle, submerge, etc. The course will highlight the roles of imperialism, (settler) colonialism, capitalism, racism, heteropatriarchy, ableism, and other forms of social power in shaping these formations as well at the social categories - "sex," "gender," and "sexuality" - themselves.

ANTH 3049W. Anthropology of Social Class. (WI; 3 cr. ; A-F only; Fall Odd Year)
Anthropological concept of culture. Theories of class difference. Investigate comparative ethnographic about experience of class difference. Classic texts, mass media/full-length ethnographic accounts will be used.

ANTH 3145W. Urban Anthropology. (WI; 3 cr. ; Student Option; Periodic Spring)
This class explores anthropological approaches to urban life. On one hand, the course examines the ontological nature of the city by looking into the relation between cities and their environment, and asking whether and how people differentiated "urban" and "non-urban" spaces. It uncovers the social practices and behaviors that define urban life; urban-rural distinctions; the material and ecological processes that constitute cities; and popular representations of city and/or countryside. On the other hand, the course investigates the spatial and social divisions of the city, seeking to understand the historical struggles and ongoing processes that both draw together and differentiate the people of an urban environment. It studies how cities influence decision-making, contributing to the uneven distribution of power and resources. It considers: industrialization; urban class conflict; gendered and racialized spaces; and suburbanization. Both of these approaches will also critically consider the city as a social object that we encounter and learn about through our engagement with kinds of media, such as novels and film. Hence, reading for the class will include literature from the social sciences and humanities, as well as critical works of fiction. Students will engege with these broader anthropological issues through an investigation of several global cities, especially Minneapolis-St. Paul, Chicago, Paris, Mexico City, Brasilia, and New Delhi. The class mixes lecture, discussion, and guided research. Lectures will introduce the history of urbanism and urban anthropology. Discussions will critically examine the readings, and offer insights and examples to better understand them. By participating in a guided research project, students will uncover hidden aspects of their own city, using ethnography or archaeology to shed light on the urban

environment, social struggles over space, or other themes.

ANTH 3206. Sex, Murder, and Bodily Discharges: Purity and Pollution in the Ancient World. (3 cr. ; Student Option No Audit; Every Spring)
"Dirt is dangerous" wrote Mary Douglas more than 50 years ago in her groundbreaking study, Purity and Danger: an Analysis of the Concept of Pollution and Taboo. Her work has been influential in ancient Near Eastern and Mediterranean studies when dealing with issues of sacred/profane, purity/pollution, and ritual sacrifice and purification. Douglas' work provides a framework within which to understand ancients' thinking about these concepts that range from the sacredness of space and bodies to perceived pollutions cause by bodily leakage or liminal stages of life and death. In this course, we will examine Douglas' theory in light of ancient evidence, with special attention to anceint Israelite literature (the Tanakh or Old Testament) and ancient Jewish literature (the Dead Sea Scrolls), but we will also analyze other ancient Near Eastern and Mediterranean examples of purity and pollution (from epigraphical and documentary evidence).

ANTH 3221. Field School. (; 6 cr. [max 18 cr.] ; Student Option; Every Summer)
Field excavation, survey, and research. Intensive training in excavation techniques, recordation, analysis, and interpretation of archaeological materials or prehistoric remains. prereq: instr consent

ANTH 3242W. Hero, Savage, or Equal? Representations of NonWestern Peoples in the Movies. (WI; 3 cr. ; A-F only; Fall Even Year)
Images of nonWestern peoples and cultures as they have appeared in movies and in other popular media.

ANTH 3255. Archaeology of Ritual and Religion. (3 cr. ; Student Option; Fall Even Year)
The course discusses evidence for the origins of religion and its diverse roles in human socieities over millennia. It focuses on how artifacts and architecture are essential to religious experience. It asks: What constitutes religion for different cultures? Why is religion at the heart of politics, social life, and cultural imagination?

ANTH 3306W. Medical Anthropology. (GP,WI; 3 cr. ; A-F or Audit; Every Fall)
Relations among human affliction, health, healing, social institutions, and cultural representations cross-culturally. Human health/affliction. Medical knowledge/power. Healing. Body, international health, colonialism, and emerging diseases. Reproduction. Aging in a range of geographical settings. prereq: 1003 or 1005 or entry level soc sci course recommended

ANTH 3327W. Inca, Aztec & Maya Civilizations. (HIS,WI; 3 cr. ; A-F only; Periodic Fall)
This course is an intensive examination of the emergence, growth, and conquest of native civilizations in ancient America, focusing on the Maya, Aztec, and Inca states. Lectures and discussions examine the culture and history of these Native American civilizations, while also introducing students to anthropological theories of the state, religion, aesthetics, and history.

ANTH 3401. The Human Fossil Record. (; 3 cr. ; A-F only; Fall Even Year)
Fossil evidence paleoanthropologists use to reconstruct human evolutionary history. Taxonomy, phylogeny, behavior, ecology, tool use, land use, biogeography. Hands-on examination of fossil casts, readings from primary/secondary professional sources. prereq: 1001 or instr consent

ANTH 3402. Zooarchaeology Laboratory. (; 3 cr. ; A-F only; Every Fall)
How archaeologists reconstruct past societies, diets, and environments. Bones and bone fragments to skeletal element (e.g., femur, humerus, tibia), side, age, and taxon (e.g., horse, bison, antelope, hyena). Adaptations and functional morphology of animals? anatomy. Tool marks, tooth marks, burning, and types of bone breakage. Past societies' hunting, sharing, cooking practices as well as environmental reconstruction using vertebrates.

ANTH 3405. Human Skeletal Analysis. (; 4 cr. ; Student Option; Every Spring)
Structure, design, and variability of modern human skeleton. Anatomy, functional morphology, development, evolutionary history. Bone histology/biology, excavation/preservation, taphonomy, pathology, forensic analyses. Differentiating between males/females, adults/sub-adults, and humans/non-humans.

ANTH 3501. Managing Museum Collections. (3 cr. ; A-F or Audit; Fall Even Year)
The care and maintenance of collection objects and their associated information are a crucial part of both the sciences and the humanities. This course is designed to provide foundations and practical experience with many of the issues faced by those responsible for museum collections: conservation, legal issues, organization and classification, digitization, accessibility, and policies and procedures. The course includes lectures by museum professionals, field trips to local facilities, and hands-on activities. Credit will not be granted if credit has been received for ANTH 5501.

ANTH 3601. Archaeology and Native Americans. (DSJ; 3 cr. ; Student Option; Fall Even Year)
Historical, political, legal, and ethical dimensions of the relationship of American archaeology to American Indian people. Case studies of how representational narratives about Native people are created through archaeology; responses by Native communities; and the frameworks for collaborative and equitable archaeological practice. Professional ethics in archaeology/heritage studies in American contexts.

ANTH 3631. Islam in America: A History of the Present. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
From the "Age of Discovery" and the African slave trade, to Malcolm X and the War on Terror, Islam has long been an integral part of the American landscape. In this course, students will examine the history of Islam and social formation of Muslim communities in the United States. We will approach this history in the plural: as histories of Islam in America, paying particular attention to the different local and global dynamics that led to the migration of this racially, ethnically, and class variegated community. This course will explore how racial, national, cultural, and sectarian differences within and between Muslim communities shape and challenge the notion of a singular Islam or Muslim community. We will ask how and why Islam and Muslims have been characterized - both historically and today - as a "problem" in/for America. What does the emergence of terminology like "American Muslim" and "American Islam" tell us about these historical tensions, conceptions of good/bad citizenship, and identity politics more broadly, in the United States today?

ANTH 3896. Internship for Academic Credit. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

ANTH 3913. Capstone Project Planning. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Evaluation of work to date. Planning future course work and prospectus for senior research project. Defining senior project, finding an adviser, developing preliminary bibliography. prereq: [Jr or sr] anth major, instr consent

ANTH 3980. Topics in Anthropology. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics specified in Class Schedule.

ANTH 4001. Advanced Method and Theory in Archaeology. (; 3 cr. [max 9 cr.] ; Student Option; Every Spring)
An upper-level archaeology class, highly recommended for anthropology students considering a career in archaeology or biological anthropology. Some years it is taught as a methods course (e.g., Experimental Archaeology), other years as a theory course (e.g., the Archaeology of Religion).

ANTH 4003W. Contemporary Perspectives in Cultural Anthropology. (WI; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course considers issues of race, class, gender, ?culture," and globality across multiple

genres of writing (ethnography, history, fiction, poetry, memoir). We do this by reading the work of writers who, with an ethnographic sensibility, focus on a particular person whose life is lived in obscurity, at the margins. We ask how such an approach that aims to evoke a world through a life might allow the reader to understand how people move across space and time and through their social worlds, in ways that other kinds of ethnographic or historical writing might not. prereq: [1003 or 1005], or instr consent

ANTH 4007. Laboratory Techniques in Archaeology. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Plant remains, material culture, faunal remains, human osteology. Emphasizes lab experience. Instructor consent required. prereq: instr consent

ANTH 4013. Capstone Project. (; 1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Independent research project fulfilling the senior option; directed by a faculty member. prereq: sr major, instr consent

ANTH 4019. Symbolic Anthropology. (; 3 cr. ; Student Option; Periodic Fall)
Pragmatic/structural aspects of social symbolism cross-culturally. Focuses on power, exchange, social boundaries, gender, and rituals of transition/reversal. prereq: 1003 or 1005 or grad student or instr consent

ANTH 4025. Studies in Ethnographic Classics. (; 3 cr. ; A-F or Audit; Periodic Fall)
Five types of explanations employed in ethnographic research: diffusionism and theory of survivals; functionalist response; British structuralists; French structuralism; interpretive turn. Problems in ethnographic practice, analysis, and writing. Focuses on several classic monographic examples and associated theoretical writing. prereq: 1003 or 1005

ANTH 4031W. Anthropology and Social Justice. (WI,CIV; 4 cr. ; Student Option; Spring Odd Year)
Practical application of theories/methods from social/cultural anthropology. Issues of policy, planning, implementation, and ethics as they relate to applied anthropology. prereq: 1003 or 1005 or 4003 or grad student or instr consent

ANTH 4035. Ethnographic Research Methods. (; 3 cr. ; Student Option; Every Spring)
History of and current issues in ethnographic research. Research projects, including participant observation, interviewing, research design, note taking, life history, and other ethnographic methods. prereq: 1003 or 1005 or grad student

ANTH 4043. Romans, Anglo-Saxons and Vikings: Archaeology of Northern Europe. (; 3 cr. [max 4 cr.] ; Student Option; Periodic Spring)
Archaeology of the British Isles, Scandinavia, and northern continental Europe, from the Romans through the Viking Period. Themes to be examined include social and political organization, cross-cultural interaction, art and symbolism, and religion and ritual.

ANTH 4047. Anthropology of American Culture. (SOCS; 3 cr. ; Student Option; Every Spring)
Anthropological approaches to contemporary American society/culture. Tensions between market and family. Unity, diversity. Individualism, community.

ANTH 4049. Religion and Culture. (; 3 cr. ; Student Option; Periodic Fall)
Religious beliefs and world views cross-culturally. Religious dimensions of human life through theories of origins, functions, and forms (e.g. myth, ritual, symbolism) of religion in society. prereq: 1003 or 1005 or instr consent

ANTH 4053. Economy, Culture, and Critique. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Systems of production/distribution, especially in nonindustrial societies. Comparison, history, critique of major theories. Cross-cultural anthropological approach to material life that subsumes market/nonmarket processes.

ANTH 4069. Historical Ecology & Anthropology of the Environment. (; 3 cr. ; Student Option; Periodic Fall)
This seminar course discusses current approaches to historical ecology, the study of human-environmental relationships over time. The course draws on and combines perspectives from the four subdisciplines of anthropology (archaeological anthropology, bioarchaeological anthropology, linguistic anthropology, and sociocultural anthropology), and similar disciplines, to understand the varying ways that scholars have analyzed and defined ecologies and environmental problems. It places particular emphasis on theories that define human relationships to the environment as recursive and interdependent. These theories stand in contrast to common Western theological suppositions that see the environment as a framework to which human societies adapt or a set of resources for human communities to exploit. Rather, historical ecologists argue that the environment is a true ecology with humans in it. They contend that human communities are fundamentally and inextricably intertwined with the life cycles and needs of other species, and consequently they study how human-environmental interactions emerge through distinct historical processes and cultural circumstances.

ANTH 4075. Cultural Histories of Healing. (GP,SOCS; 3 cr. ; A-F or Audit; Spring Even Year)
Introduction to historically informed anthropology of healing practice. Shift to biologically based medicine in Europe, colonialist dissemination of biomedicine, political/cultural collisions between biomedicine and "ethnomedicines," traffic of healing practices in a transnationalist world.

ANTH 4077. Neanderthals: Biology and Culture of Humanity's Nearest Relative. (; 3 cr. ; Student Option; Periodic Fall)
Paleontological/archaeological record. Students reconstruct behavioral similarities/differences between Neanderthals and modern humans. Why humans alone survived end of Pleistocene. prereq: 1001 or 3001 or 3002 or instr consent

ANTH 4093. In-Class Capstone Project. (1 cr. ; A-F only; Every Fall & Spring)
Course that fulfills the senior capstone requirement as an add-on directed study in association with an upper-level 4xxx-5xxx-level ANTH course. Instructor or department consent required.

ANTH 4101. Decolonizing Archives. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Archives are not neutral. In order to decolonize them, scholars in anthropology and other disciplines must first understand the ways in which Western settler values have structured them. Who decides acquisition policy? How are items indexed, described, and related to one another? Who has access, and under what conditions? And who is structurally excluded? In this course we decolonize by recontextualizing both the archives as institutions and their contents. In other words, we use methods appropriate for contemporary anthropological archival research. We will consider preservation, curation, organizational bias in archives, analytic scale, voice, and how historical texts are material culture. Students engage in original archival research.

ANTH 4121. Business Anthropology. (; 3 cr. ; Student Option; Every Spring)
Anthropological/ethnographic understandings/research techniques.

ANTH 4329. Primate Ecology and Social Behavior. (; 3 cr. ; A-F or Audit; Periodic Fall)
Primates as model system to explore animal/human behavior. Factors influencing sociality/group composition. Mating systems. Prevalence of altruistic, cooperative, and aggressive behavior. Strength of social bonds in different species. Evolution of intelligence/culture. prereq: BIOL 1009 or BIOL 1951 or BIOL 3411 or ANTH 1001 or instr consent

ANTH 4344. Europe and its Margins. (; 3 cr. ; A-F only; Every Fall)
This course explores some of the forms of human imagining (literary, artistic, political, social scientific) engendered by the notoriously hard to define entity known as "Europe." It does so by focusing on regions and populations that have been thought of at various times as marking Europe's inner and outer cultural and/or geographical limits. Topics addressed include: the relationship between physical geography, cultural memory, and the formation (or subversion) of identity claims; the reconfigured political landscapes of post-socialism and European integration; immigration, refugee flows, and the rise of far-right ethno-nationalisms; and the effects of pandemics past and present. prereq: One course in [ANTH or GLOS]

ANTH 4991. Independent Study. (; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
Under special circumstances and with the approval of the instructor, qualified students may register for a listed course on a tutorial basis. prereq: instr consent

ANTH 4992. Directed Readings. (; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)

Allows students to pursue special interests in anthropology through reading materials under the guidance of a faculty member. prereq: instr consent

ANTH 4993. Directed Study. (; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
Allows students to pursue special interests in anthropology under the guidance of a faculty member. prereq: instr consent

ANTH 4994W. Directed Research. (WI; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
Qualified students may conduct a well-defined research project under the guidance of a faculty member. prereq: instr consent

ANTH 5008. Advanced Flintknapping. (; 3 cr. ; A-F or Audit; Periodic Fall)
Hands-on training in techniques of advanced stone tool production, artifact reproduction, and lithic experimental design for academic/ artistic purposes. prereq: [3008 or 5269] or instr consent

ANTH 5009. Human Behavioral Biology. (; 3 cr. ; A-F or Audit; Every Spring)
In-depth introduction to, and critical review of, human behavioral biology, examining the approaches in anthropology and related fields. Classic texts/recent empirical studies of humans and other species. Theoretical underpinnings of this new discipline/how well theoretical predictions have been supported by subsequent research.

ANTH 5015W. Biology, Evolution, and Cultural Development of Language & Music. (SOCS,WI; 3 cr. ; Student Option; Every Spring)
Language is the most human form of behavior, and the investigation of the ways language and culture interact is one of the most important aspects of the study of human beings. The most fascinating problem in this study is how language itself may have evolved as the result of the interaction between biological and cultural development of the human species. In this course we will consider the development of the brain, the relationship between early hominins, including Neanderthals and Modern Humans, and such questions as the role of gossip and music in the development of language.

ANTH 5021W. Anthropology of the Middle East. (GP,WI,SOCS; 3 cr. ; Student Option; Fall Even Year)
Anthropological field methods of analyzing/ interpreting Middle Eastern cultures/societies.

ANTH 5027W. Archaeology of Prehistoric Europe. (HIS,WI; 3 cr. ; Student Option; Every Fall)
How archaeologists/historians analyze/interpret artifacts to develop knowledge about formation of European society, from earliest evidence of human occupation to Roman Period. Interpreting archaeological evidence from specific sites to understand broad trends in human past.

ANTH 5028. Introduction to Historical Archaeology. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Emphasizes research approaches. Documentary research, oral history, probate inventories/acculturation, integration of documents/archaeological data, analysis of community patterning, social analysis of architecture, foodways, artifact identification, mean ceramic dating, industrial archaeology, estimation of social status with cemetery data, sampling, report writing.

ANTH 5041. Ecological Anthropology. (; 3 cr. ; Student Option; Periodic Fall)
Concepts, theories, and methods of ecological anthropology (cultural ecology) show how humans interact with the biophysical environment. Compare biological and cultural interactions with the environment; examine adaptive strategies cross-culturally. prereq: grad or instr consent

ANTH 5045W. Urban Anthropology. (WI; 3 cr. ; Student Option; Periodic Spring)
This class explores anthropological approaches to urban life. On one hand, the course examines the ontological nature of the city by looking into the relation between cities and their environment, and asking whether and how people differentiate "urban" and 'non-urban" spaces. It uncovers the social practices and behaviors that define urban life; urban-rural distinctions; the material and ecological processes that constitute cities; and popular representations of city and/or countryside. On the other hand, the course investigates the spatial and social divisions of the city, seeking to understand the historical struggles and ongoing processes that both draw together and differentiate the people of an urban environment. It studies how cities influence political decision-making, contributing to the uneven distribution of power and resources. It considers: industrialization; urban class conflict; gendered and racialized spaces; and suburbanization. Both of these approaches will also critically consider the city as a social object that we encounter and learn about through our engagement with kinds of media, such as novels and film. Hence, reading for the class will include literature from the social sciences and humanities, as well as critical works of fiction. Students will engage with these broader anthropological issues through an investigation of several global cities, especially Minneapolis-St. Paul, Chicago, Paris, Mexico City, Brasilia, and New Delhi. The class mixes lecture, discussion, and guided research. Lectures will introduce the history of urbanism and urban anthropology. Discussions will critically evaluate the readings, and offer insights and examples to better understand them. By participating in a guided research project, students will uncover hidden aspects of their own city, using ethnography or archaeology to shed light on the urban environment, social struggles over space, or other themes.

ANTH 5112. Reconstructing Hominin Behavior. (3 cr. ; A-F or Audit; Spring Even Year)
Major hypotheses regarding evolution of human behavior. Combine evidence from realm of biological anthropology as we consider link between bone biology/behavior. Archaeological record. Hypotheses about biocultural evolution regarding tool-use, hunting, scavenging, food sharing, grandmothers, cooking, long distance running. prereq: Previous coursework in Biological Anthropology or Archaeology

ANTH 5113. Primate Evolution. (3 cr. ; A-F only; Fall Odd Year)
Evolutionary history of primates. Particular focus on origin/diversification of apes/Old World monkeys. prereq: Anthropology major, junior or senior

ANTH 5121. Business Anthropology. (; 2 cr. ; Student Option; Every Spring)
Anthropological/ethnographic understandings/ research techniques. prereq: MBA student

ANTH 5128. Anthropology of Education. (3 cr. ; Student Option; Spring Odd Year)
Cross-cultural perspectives in examining educational patterns. Implicit/explicit cultural assumptions. Methods/approaches to cross-cultural studies in education.

ANTH 5221. Anthropology of Material Culture. (; 3 cr. ; A-F or Audit; Periodic Fall)
The course examines material culture as a social creation, studied from multiple theoretical and methodological perspectives (e.g., social anthropology, archaeology, primatology, history of science). The course examines the changing role of material culture from prehistory to the future.

ANTH 5244. Interpreting Ancient Bone. (; 4 cr. ; A-F or Audit; Every Fall)
How anthropologists use fossil bones to answer questions of past human diet, behavior, and environments. Basics of skeletal-element/ species identification of humans and large mammals. Project where students analyze a small assemblage of bones. Emphasizes scientific method, data analysis using computers. prereq: 1001

ANTH 5255. Archaeology of Ritual and Religion. (3 cr. ; Student Option; Fall Even Year)
The course discusses evidence for the origins of religion and its diverse roles in human societies over millennia. It focuses on how artifacts and architecture are essential to religious experience. It asks: What constitutes religion for different cultures? Why is religion at the heart of politics, social life, and cultural imagination?

ANTH 5269. Analysis of Stone Tool Technology. (4 cr. ; A-F or Audit; Fall Even Year)
The course offers practical lab experience in analyzing archaeological collections of stone tools to learn about human behavior in the past. Students gain experience needed to get a job in the cultural resource management industry.

ANTH 5327W. Inca, Aztec & Maya Civilizations. (HIS,WI; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall)
This course is an intensive examination of the emergence, growth, and conquest of native civilizations in ancient America, focusing on the Maya, Aztec, and Inca states. Lectures and

discussions examine the culture and history of these Native American civilizations, while also introducing students to anthropological theories of the state, religion, aesthetics, and history.

ANTH 5401. The Human Fossil Record. (; 3 cr. ; A-F only; Fall Even Year)
Fossil evidence paleoanthropologists use to reconstruct human evolutionary history. Taxonomy, phylogeny, behavior, ecology, tool use, land use, and biogeography. Examination of fossil casts, readings from primary/secondary professional sources. prereq: 1001 or instr consent

ANTH 5402. Zooarchaeology Laboratory. (; 3 cr. ; A-F only; Every Fall)
How archaeologists reconstruct the past through the study of animal bones associated with artifacts at archaeological sites. Skeletal element (e.g., humerus, femur, tibia), and taxon (e.g., horse, antelope, sheep, bison, hyena) when confronted with bone. Comparative collection of bones from known taxa.

ANTH 5403. Quantitative Methods in Biological Anthropology. (4 cr. ; Student Option; Fall Even, Spring Odd Year)
Quantitative methods used by biological anthropologists. Applying these methods to real anthropometric data. Lectures, complementary sessions in computer lab. prereq: Basic univariate statistics course or instr consent

ANTH 5405. Human Skeletal Analysis. (4 cr. ; Student Option; Every Spring)
Structure, design, and variability of modern human skeleton. Anatomy, functional morphology, development, evolutionary history. Bone histology/biology, excavation, preservation, taphonomy, pathology, forensic analyses. Differentiating between males/females, adults/sub-adults, and humans/non-humans. Quizzes, exams, research paper, project.

ANTH 5412. Comparative Indigenous Feminisms. (GP; 3 cr. ; Student Option No Audit; Periodic Fall & Spring)
The course will examine the relationship between Western feminism and indigenous feminism as well as the inter connections between women of color feminism and indigenous feminism. In addition to exploring how indigenous feminists have theorized from 'the flesh' of their embodied experience of colonialism, the course will also consider how indigenous women are articulating decolonization and the embodiment of autonomy through scholarship, cultural revitalization, and activism.

ANTH 5442. Archaeology of the British Isles. (; 3 cr. ; A-F only; Every Fall)
Material evidence of prehistoric/historical past. Archaeological study of recent and modern times in Britain. Approaches/interpretations of materials. Issues of preservation/presentation.

ANTH 5448. Applied Heritage Management. (; 3 cr. ; A-F only; Every Spring)
Contexts of cultural heritage applicable to federal/state protection. Approaches to planning/management. Issues of heritage/stakeholder conflict.

ANTH 5450. Spatial Analysis in Anthropology: Research Design and Field Applications. (3 cr. ; Student Option No Audit; Spring Even Year)
This advanced undergraduate and graduate course introduces students to spatial analyses essential to anthropological ethnography, archaeology, and historical ecology. It builds on introductory courses at UMN, providing students an opportunity to learn anthropological applications of spatial analysis methods, including: research design, field mapping, database management, digital survey platforms, GIS analyses, and integration of quantitative and qualitative (ethnographic and historical) data. The structure of the course will follow the trajectory of a typical doctoral-level anthropological project, from pre-field data acquisition and preparation, to in-field data collection, post-field analysis, and presentation. Students who take this course will master skills that are crucial for successful anthropological spatial analysis in the field and laboratory.

ANTH 5501. Managing Museum Collections. (3 cr. ; A-F or Audit; Fall Even Year)
The care and maintenance of collection objects and their associated information are a crucial part of both the sciences and the humanities. This course is designed to provide foundations and practical experience with many of the issues faced by those responsible for museum collections: conservation, legal issues, organization and classification, digitization, accessibility, and policies and procedures. The course includes lectures by museum professionals, field trips to local facilities, and hands-on activities. Credit will not be granted if credit has been received for ANTH 3501.

ANTH 5601. Archaeology and Native Americans. (DSJ; 3 cr. ; Student Option; Fall Even Year)
Historical, political, legal, and ethical dimensions of the relationship of American archaeology to American Indian people. Case studies of how representational narratives about Native people are created through archaeology; responses by Native communities; and the frameworks for collaborative and equitable archaeological practice. Professional ethics in archaeology/heritage studies in American contexts.

ANTH 5980. Topics in Anthropology. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

Apparel Design (ADES)

ADES 1221. Apparel Assembly Fundamentals. (; 3 cr. ; A-F or Audit; Every Fall)
Methods/applications of apparel assembly, from micro to macro perspective. prereq: Pre-apparel design major or instr consent

ADES 2196. Work Experience in Apparel Design. (; 1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Supervised work experience in business, industry, or government, related to student's area of study. Integrative paper or project. prereq: Plan submitted/approved by [adviser, internship supervisor], written approval of supervisor, instr consent

ADES 2211. Fashion Illustration and Portfolio Development. (4 cr. ; A-F or Audit; Every Spring)
Illustration skills specific to garments/textiles. Traditional media/CAD applications. Critique/analysis of visual communication of apparel design concepts.

ADES 2213. Textile Analysis. (; 4 cr. ; A-F or Audit; Every Fall)
Physical, chemical, and biological characteristics of fibers, yarns, textile structures, and finishes. Their effect on performance/appearance of textile products, including apparel, interior, and industrial textiles. prereq: DHA major or pre-major or instr consent

ADES 2214. Softlines Analysis. (; 3 cr. ; A-F or Audit; Every Spring)
Physical characteristics of softline products related to function for target market. Class experiences based on methods of analysis, including visual inspection, quality, construction, costing, and fit/sizing. prereq: DHA major or minor or instr consent

ADES 2221. Apparel Design Studio I. (; 4 cr. ; A-F or Audit; Every Spring)
Theories/methods in designing apparel for various user groups. Relation of two-dimensional pattern shape to three-dimensional body. Introduction to flat-pattern draping. prereq: [DHA 1201 or RM 1201], [1221 or DHA 1221], apparel design premajor

ADES 2222. Apparel Design Studio II. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Design process in developing apparel for specific user group. Advanced principles/methods of developing patterns for body, including flat pattern, draping, fitting. Computer-aided design tools for illustration, pattern making. prereq: [2221 or DHA 2221] with a grade of at least C-, Apparel Design major, pass portfolio review

ADES 3170. Topics in Apparel Design. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
In-depth investigation of specific topic.

ADES 3196. Field Study: National or International. (; 1-10 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Faculty-directed field study in a national or international setting. prereq: instr consent

ADES 3217. Fashion: Trends and Communication. (; 3 cr. ; A-F or Audit; Every Fall)
Relation of fashion trends to visual analysis of apparel. Application to design/retail.

ADES 3223. Apparel Design Studio III. (4 cr. ; A-F or Audit; Every Spring)
Study tailored/non-tailored apparel structures. Experiment with various materials/structures using traditional/innovative methods. Principles of manipulating materials/structures applied to

series of garments. prereq: [2222 or DHA 2222] with grade of at least C-, Apparel Design major, pass portfolio review

ADES 3224W. Apparel Design Studio IV. (WI; 4 cr. ; A-F or Audit; Every Spring)
Principles and theory of functional apparel design. Conduct and apply research in designing apparel for situations requiring thermal or impact protection, accommodation for mobility, or facilitation for bodily function. prereq: apparel design major

ADES 3225. Apparel Design Research. (; 1 cr. ; A-F only; Every Spring)
Market/visual research to support development of apparel line directed at specific audience. prereq: 3324 or concurrent registration is required (or allowed) in DHA 3224

ADES 3227. Technical Design Studio. (4 cr. ; A-F only; Every Fall)
Technical development of sewn product for production. Variability in human physical sizes, and grading and fit across a population. In team-based projects, you will develop a sewn product pattern; generate prototypes and technical specifications; source materials; and plan, execute, and evaluate a production run for a sewn product. prereq: 2213, [3223 with grade of C or above]

ADES 4121. History of Fashion, 19th to 21st Century. (; 4 cr. ; A-F or Audit; Every Spring)
Survey of apparel/appearances in Western cultures, from 18th century to present. Role of gender, race, and class with respect to change in dress within historical moments and social contexts. Research approaches/methods in study/interpretation of dress.

ADES 4160H. Honors Capstone Project. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Individualizes honors experience by connecting aspects of major program with special academic interests. prereq: DHA honors

ADES 4193. Directed Study in Apparel Design. (1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in Design, Housing, and Apparel under tutorial guidance. prereq: Undergrad, instr consent

ADES 4196. Internship in Apparel Design. (; 1-4 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Supervised work experience relating activity in business, industry, or government to student's area of study. Integrative paper or project may be required. prereq: Completion of at least one-half of professional sequence, plan submitted and approved in advance by adviser and internship supervisor, written consent of faculty supervisor, instr consent

ADES 4215. Product Development: Softlines. (; 4 cr. ; A-F or Audit; Every Spring)
Product development for apparel and other sewn products. Developing products in a lab studio for effectiveness, reliability, and marketability. Team approach using merchandising/design principles to develop products for specific markets. prereq: 2213 or DHA 2213 or apparel design major or clothing design major or retail merchandising major or instr consent

ADES 4218W. Fashion, Design, and the Global Industry. (WI; 3 cr. [max 6 cr.] ; A-F only; Every Fall)
Relationship of fashion, dress, and culture to fashion industry. Globalization, fashion centers, design, time/place. Focuses on Chinese fashion industry. prereq: Upper level undergraduate or grad student

ADES 4225. Apparel Design Studio V. (4 cr. ; A-F or Audit; Every Fall)
Market research information/implementation. Designing for specific audience, market, user group. Applying market research to design line of apparel. Research of promotional methods for design project. prereq: [[3224 or DHA 3224], [3225 or DHA 3225]] with grade of at least C-, apparel design major

Apparel Studies (APST)

APST 5117. Retail Environments and Human Behavior. (; 3 cr. ; A-F or Audit; Every Fall)
Theory/research related to designed environment across retail channels. prereq: Grad student or instr consent

APST 5121. History of Fashion, 19th to 21st Century. (; 4 cr. ; A-F only; Every Spring)
Analysis/interpretation of primary data about 19th/20th centuries based on historical methods. Critique of cultural, social, economic, technological, political, and artistic data presented through lens of dress in film/literature.

APST 5123. Living in a Consumer Society. (; 3 cr. ; A-F only; Fall Odd Year)
Consumerism within U.S. society. Commodification of health care, education, and production of news. Commercialization of public space/culture. What drives consumer society. How meaning is manufactured. What the lived experiences are of consumers today. Postmodern market. Alternatives to consumer society. prereq: Sr or grad student

APST 5170. Topics in Apparel Studies. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
In-depth investigation of specific topic, announced in advance.

APST 5193. Directed Study in Apparel Studies. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in apparel studies under tutorial guidance. prereq: instr consent

APST 5218. Fashion, Design, and the Global Industry. (; 3 cr. ; A-F only; Every Fall)
Relationship of fashion, dress, and culture to time, place, and design. Focuses on fashion centers, fashion industry, and globalization. Chinese fashion industry as case study.

APST 5224. Functional Clothing Design. (4 cr. ; A-F only; Every Spring)
This class uses an engineering design process to analyze and meet the functional needs of specific user groups. We will be designing clothing that protects users from environmental conditions, and that facilitates and/or expands body function and movement. Physical principles of clothing and human anatomy are explored. A theoretical understanding of human anatomy and movement is applied through advanced patterning techniques for a variety of body types, work environments, and activities. Class projects are often conducted with an outside partner. Project work focuses on developing skills in collecting, synthesizing (in written and visual form) and using evidence to inform the design of a solution to a user-centered problem. Written documentation, developmental prototypes, and final design solutions are produced and evaluated.

Applied Business (ABUS)

ABUS 3029W. Writing Workshop for Applied & Professional Studies Majors. (WI; 2 cr. ; A-F only; Every Fall & Spring)
Writing is omnipresent throughout Applied and Professional Studies (APS) courses; nearly all require some form of written product and assess students in some way through their writing ability. Focusing on in-depth instruction, constructive feedback, and hands-on experience, this 7-week writing workshop is designed for students who find themselves struggling with writing concepts in their other classes or who want more writing practice to refine and hone their existing skills. Students will learn to understand writing expectations in their disciplines and develop techniques for brainstorming, organizing, outlining, and researching. Students will also practice the drafting process, focusing on mastering business grammar, avoiding common mistakes, and cultivating a clear and concise style. Students will learn the components of clear structure such as transitioning between ideas, logical organization, and integrating research. Students will also develop reliable editing techniques to test their own writing for clarity, logic, and appropriate tone, as well as methods for thinking through critical feedback and incorporating changes into revisions of existing documents. Students must be enrolled in a CCAPS undergraduate major (premajor status is allowed).

ABUS 3051. Career Search for the Professional Environment. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
An introduction to the nuts and bolts of job search strategies, including r?sum? writing, interviewing, networking, and the use of technology and the Internet in job seeking. You will begin to make realistic decisions about what kinds of jobs and work environments will best suit you after graduation and into the future, and formulate a concrete plan for how to attain this important career goal. In addition, you will have an understanding of the professional environment of business. This will include appropriate on-the-job behavior and how knowledge of corporate culture, communication, and etiquette can make the difference between struggling in the business world and succeeding and advancing. Professional presentation, dress, and

communication are highlighted. Assignments will focus on practical and applied knowledge relating to career-oriented skills, exploration, and success. Prerequisites: None, but upper-division status recommended.

ABUS 3052. Career Building in the Remote Gig Economy. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Businesses are shifting from full-time permanent employment models to a greater reliance on short-term contract work and freelance projects. This trend is referred to as the emerging "gig economy." Already, more than one in three people earn a full or partial income from leveraging this evolving marketplace. In 2019, Amazon announced plans to hire over a thousand remote customer service reps. Technical coders, freelance photographers, consultants, bloggers, rideshare contractors, career coaches, and online affiliate marketers are just a few among many remote gig opportunities experiencing rapid growth. This course examines the structure of a remote gig economy and corresponding career opportunities. Students will develop a deep understanding of the current gig landscape, develop initiatives and self-direction tactics to meet its needs, and leave armed to succeed in a growing remote gig economy. Activities are centered around obtaining work in the gig economy and being an exceptional remote "gigger" as an individual contributor. Additionally, students will learn how to parlay those talents into endless career path opportunities, including leadership and management roles in a quickly evolving, exciting workplace. Prerequisites: None

ABUS 3201. Digital Design Strategies for Small Business. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Basics of multi-platform strategies to promote small businesses or a personal brand. Primary concepts include developing a cross-platform digital presence, creating brand identity, analyzing strategy effectiveness, and researching the competition. Students will work to develop a complete digital strategy for their own small business or personal brand by working both individually and in groups to find creative solutions for reaching their target audience in today's market. Prerequisites: None.

ABUS 3301. Introduction to Quality Management. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Principles/concepts of managing quality in business applications. Improving business processes with six sigma method. Implementing/leading process improvement. Baldrige Award, ISO 9000. prereq: Introductory statistics

ABUS 3510. Communicating Virtually Across Global Teams in Applied Business Settings. (; 4 cr. ; A-F or Audit; Every Fall)
Collaborative exploration of virtual communication within teams/across cultures. Impact of technologies on global business/societies. Virtual team functioning/ dynamics. Influence of cultural perspective on communication within group. Role of communication technology in cultural development. Ethical/legal implications.

ABUS 4013W. Legal, Ethical, and Risk Issues for Managers. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Key legal, ethical, and risk frameworks in business activity and civic life. Students will identify areas of exposure within their specific industry and learn about best practices to minimize legal liability and manage risk. The writing-related instruction is designed to develop effective management-level communication skills regarding legal, ethical, and other risks and to develop a thoughtful analytical approach to addressing real-world risks. prereq: CMgt 4011 recommended for CMgt students, 45 semester credits

ABUS 4022W. Management in Organizations. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Demands on today's managers, with a focus on small to medium-sized organizations. Techniques/ideas beyond traditional studies. Applying management theory at all levels. Managing in a global workplace. Organizational planning and decision making. Organizing resources. Leading/motivating people. Controlling/evaluating organizational activities. This writing intensive designated course will spend significant time focusing on the writing process. Writing is crucial to this discipline because clear, accurate, and professional communication is essential to organization management. The ability to write effectively in terms of specified audiences ensures, in the professional world, successful communication between team members as well as the success of the projects, companies, and employees they represent. prereq: 45 semester credits recommended

ABUS 4023W. Communicating for Results. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Aspects of communication essential for being persuasive/influential. Organizing/presenting ideas effectively, strategies for audience analysis, choosing communication methods, making appropriate use of informal influence methods, handling dissent. Processes for intercultural communication. prereq: 45 cr completed

ABUS 4041. Dynamics of Leadership. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Successful leadership via flexible approach. Knowledge, skills, and abilities that leaders develop from eight leadership strategies: academic, bureaucratic, eclectic, economic, fellowship, military, political, social. Ways to lead diverse populations in a global environment. prereq: 45 cr completed

ABUS 4043. Project Management in Practice. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to project management: tools and techniques for defining, scheduling, and managing a project. Learn about team development and ways to enhance team performance through planning and executing a project. Requires use of MS Project, which will be made available to students without cost via download. prereq: 45 cr completed

ABUS 4101. Accounting and Finance for Managers. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Cost accounting concepts. Cost behavior. Management decision making using cost data. Time value of money. Cost of capital. Capital budgeting techniques. Financial statement analysis. Assignments draw on business/industry examples. prereq: Financial accounting, 45 cr

ABUS 4104. Management and Human Resource Practices. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Providing day-to-day leadership. Organizing work, motivating employees. Delegating, coordinating, and achieving results. Front line human resource practices, including selection, induction, and training of new employees, employee appraisal. Handling grievances/ discipline. prereq: 45 cr completed

ABUS 4105. Becoming an Authentic Leader in an Applied Business Setting. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Students will gain proficiency in various leadership modalities within a self-reflective framework. They will learn to build their own authentic leadership capabilities as well as assess those of fellow leaders across individual, group, and organization levels. Assignments will examine temperament and decision-making, goal setting and personal beliefs, change-making and coping with pressure, and developing personal strengths and professional authenticity. Prerequisites: None

ABUS 4151. Innovation for Leaders and Organizations. (; 3 cr. ; A-F or Audit; Every Spring)
Innovation as cornerstone of knowledge economy. History of innovation process, importance to individuals/organizations. Strategies to foster innovation. Responsibilities in innovation skill-building/leadership. prereq: 45 cr

ABUS 4211. Facility Asset Management, Finance, and Budgeting. (; 2 cr. ; A-F or Audit; Every Fall)
Examination of different types of leases. Relevance of BOMA (Building Office & Managers Association) space standards. Understanding components of total annual and capital facility costs. Analyzing and interpreting facility financial statements and reports. Constructing facility capital and operating budgets. Illustrating GAAP (generally accepted accounting principles) related to asset capitalization, and applying financial terminology when speaking to the chief financial officer. Recommended prereq: ABUS 4101 or basic accounting/finance knowledge/ experience

ABUS 4213. Facility Management Fundamentals. (; 3 cr. ; A-F or Audit; Every Fall)
Managing operation and maintenance of building systems and facility management

departments. Operation of mechanical, electrical, and plumbing systems. Critical spaces, fire/life safety systems, utilities. Maintenance for specific building systems. Technology and resources used to support building operations and maintenance.

ABUS 4217. Real Estate Development: Process and Tools. (; 2 cr. ; A-F or Audit; Every Fall)
Real estate development creates and alters our built environment. Working with architects, engineers, contractors, financing teams, government, and a host of consultants, real estate developers transform ideas into buildings, and with this, the spaces in which we live, work, and play. So, how do developers identify good and bad opportunities, and then, once committed, manage a wide group of stakeholders, often with disparate interests, to get the project completed and operating as planned? It is a challenge every step of the way, with a myriad of risks and obstacles to overcome, but with significant potential rewards. This course traces the development process from beginning to end, introducing foundational knowledge in project feasibility analysis and financial modeling, and integrating real world examples via case studies and interviews with Twin Cities-based practitioners. Prereq: 45 credits. Familiarity with finance and accounting concepts helpful.

ABUS 4218. Real Estate Finance. (; 2 cr. ; A-F or Audit; Every Fall)
Real estate finance, as commonly understood, is about the capital that transforms development ideas into the built form. But in this course, we will focus on real estate finance as a dynamic and significant industry and explore the internal language, norms, and practices of financiers, ranging all the way from hedge funds seeking returns rivaling those of Wall Street, to those backing community redevelopment and affordable housing projects. It will begin with an overview of the industry and introduce common tools of finance such as pro forma, then move on to sources of finance, from hedge funds to commercial banks and community-based lenders. We will be visited by finance practitioners, including several operating in the Twin Cities, as well as their development clients. There is an entire real estate finance ecosystem to explore, and students will leave the class with an understanding of its products, sources, and roles while developing facility with its analytical tools.

ABUS 4501. Building and Running a Small Business Enterprise. (; 4 cr. ; A-F or Audit; Every Fall)
Basic marketing, finance, and leadership principles that apply to the formation of a small business enterprise. A variety of class discussions and independent reflective exercises will enable students to assess their resources and develop management, leadership, and business administration skills. The final project is collaborative: the creation of a business plan for a start-up. Prerequisites: None, although previous business experience or study will be helpful.

ABUS 4502. Inclusive Business Leadership: Advancing Diversity. (; 3 cr. ; A-F or Audit; Every Fall)
This course explores leveraging an organization's diversity through inclusive leadership. Taking consideration of the value of diversity to the next level, we ask: How do we unleash the full potential of a diverse organization? To answer, students will do personal reflection on diversity, inclusiveness, and unconscious biases, and also take the Cultural Orientations Indicator (COI). This increased self-awareness will serve as a foundation for students to strategically plan and actively engage business leaders in creating more inclusive business practices.

ABUS 4509. New Product Development. (; 3 cr. ; A-F or Audit; Every Spring)
How new consumer, industrial, and service products are planned/developed. Idea generation, concept/buyer testing, pricing, sales/profit strategies, product positioning, promotion, packaging/distribution. Marketing case histories. Student projects. prereq: [[4103 or 4701 or Mktg 3001], at least 45 cr] or instr consent

ABUS 4515. Strategy and Management for a Sustainable Future. (; 3 cr. ; A-F or Audit; Every Spring)
Sustainability in business. Relationship of sustainable environments to organizations. Economic/strategic enterprise value. Relationship of sustainable business practices to marketplace trends/realities. prereq: 45 cr completed

ABUS 4518. Leadership and Innovative Decision Making in Applied Business. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
An in-depth exploration of essential skills for businesspeople: change, creative problem solving, decision making, and innovation. Participants will immerse themselves in these topics and practice using them. They will ultimately use these important concepts to build a business of their own. Prerequisites: None

ABUS 4571W. Introduction to Grant Writing for Health Care and Nonprofit Organizations. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Nonprofits and health care entities will continue to be challenged by limited resources and increased needs in communities they serve. This reality also results in an increased need for these groups to find additional financial support. This course will provide an understanding of ways to find, research, and write proposals for grants offered by government and private entities. As a writing intensive course, it will spend significant time focusing on the writing process. Writing is crucial to the field because the only way for a nonprofit to be awarded a grant is by submitting a written proposal. The strength of the proposal has a significant impact on the money that an organization will receive. Students will become familiar with various sections of the proposal by drafting, editing, and seeking feedback, and by revising a needs assessment, goal statement, budget justification, and statement of organizational purpose. By learning how to write well in the field, students will increase their chances of being employed by a nonprofit and securing funding for their organization.

ABUS 4701. Introduction to Marketing. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Conceptual tools for creating a marketing plan. How marketing relates to other functional areas of business. Importance of an ethical, global view. prereq: [Macroeconomics or microeconomics], 45 cr

ABUS 4702. Applied Digital Marketing. (; 3 cr. ; A-F or Audit; Every Fall)
Digital marketing represents the fastest growing sector in most marketing departments. But what is digital marketing? Understanding the digital realm of marketing requires a curiosity about how new technologies will change business, while grasping the key strategies that drive tactics and trends. This course is designed to be a primer on the world of digital marketing and ways it will affect both your future employment and larger business trends. Through case studies, discussion forums, and interactive activities, you will learn about the latest research and best practices in the industry to have a solid grasp of the core concepts and tools of digital marketing management, both today and in the future. Prerequisites: None

ABUS 4703. Marketing for the Professional Practice. (; 3 cr. ; A-F or Audit; Every Spring)
Principles of marketing applied to the management of the professional practice. Begins with an introduction to marketing and its overall role and function. We will examine the four P's of marketing (product, price, place, and promotion), then move on to developing a marketing plan, which serves as a map that highlights a path towards success. We look at the major components of a marketing plan and provide you with an opportunity to gain knowledge and experience by completing one. Topics include understanding the internal and external environment, segmenting the market, positioning, differentiating, branding, and formulating a marketing plan with goals, strategies, and financial considerations. prereq: 45 semester cr recommended

ABUS 4705. Leadership and Management for the Professional Practice. (; 3 cr. ; A-F or Audit; Every Fall)
An introduction to organizational behavior for students and professionals interested in leading or managing a professional practice. Its purpose is to improve your effectiveness as a leader or manager through an understanding of the sociological, economic, and political factors that affect organizations. The course will progress from an introspective look at leadership and your own personal preferences and style, to interactions with others in groups or teams, to the structure and dynamics of organizations and how they respond to external factors. prereq: 45 semester cr recommended

ABUS 4707. Financial Management for the Professional Practice. (; 3 cr. ; A-F or Audit; Every Spring)
Provides professional practitioners with the skills they need to make informed financial

decisions for their business. It introduces the fundamental concepts of finance and also touches on related topics in financial and managerial accounting, marketing, and personal finance. Students will work in small groups to implement the principles they have learned by developing and analyzing a business plan of the kind used to request funding for a professional practice. prereq: 45 semester cr recommended

ABUS 4709. Managing the Professional Practice I: Business Design. (; 3 cr. ; A-F or Audit; Every Summer)
Factors/challenges involved in designing structure of professional practice. Core values/mission, design of services, physical design, risk management, equipment/IT, partners/staffing. Exercises in applied practice development/management. prereq: 45 cr

ABUS 4711. Managing the Professional Practice II: Operations. (; 3 cr. ; A-F or Audit; Every Summer)
Factors/challenges in day-to-day operations of professional practice. Marketing, human resources, finance, entrepreneurial spirit, inventory management, operational quality, transitions. Exercises in applied operations. prereq: 4709, 45 cr

ABUS 4993. Directed Study. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Specially arranged projects, trips, or field work. prereq: instr consent, dept consent

Applied Economics (APEC)

APEC 1001. Orientation to Applied Economics. (; 1 cr. ; A-F or Audit; Every Fall)
Introduction to curriculum offerings, liberal education requirements, employment opportunities, faculty in the Department of Applied Economics. Emphasizes historical development of the discipline, areas of specialization, coursework expectations, career planning.

APEC 1101. Principles of Microeconomics. (GP,SOCS; 4 cr. ; Student Option; Every Fall & Spring)
Economic behavior of consumers/firms in domestic/international markets. Demand, supply, competition. Efficiency, Invisible Hand. Monopoly, imperfect competition. Externalities, property rights. Economics of public policy in environment/health/safety. Public goods, tax policy.

APEC 1101H. Principles of Microeconomics. (GP,SOCS; 4 cr. ; A-F only; Every Fall)
Economic behavior of consumers/firms in domestic/international markets. Demand, supply, competition. Efficiency, Invisible Hand. Monopoly, imperfect competition. Externalities, property rights. Economics of public policy in environment/health/safety. Public goods, tax policy. prereq: Honors student, proficiency in high school algebra

APEC 1102. Principles of Macroeconomics. (3 cr. ; Student Option; Every Spring)
Unemployment/inflation, measures of national income, macro models, fiscal policy/problems. Taxes and the national debt. Money/banking, monetary policy/problems. Poverty and income distribution. International trade and exchange rates. Economic growth/development. prereq: 1101 or Econ 1101

APEC 1201. Applications of Excel in Economics and Management. (; 1 cr. ; A-F only; Every Fall & Spring)
This course offers students the opportunity to master the basic and intermediate functionality of Microsoft Excel, and apply those skills to economic and managerial applications such as the financial impact of loans and investments, growth accounting, basic regression analysis, demand and cost estimation, and resource allocation. In addition, this course also emphasizes competencies regarding presenting and discussing quantitative information: interpreting quantitative/graphical data (demonstrating quantitative literacy), determining effective data display with charts, and making adequate choices about the graphical presentation of data. This course will enable students to become proficient in assembling and presenting data using Microsoft Excel.

APEC 1251. Principles of Accounting. (3 cr. ; A-F only; Every Fall)
Financial accounting. Theory, concepts, principles, procedures. Preparation/ understanding of the four financial statements.

APEC 1905. The Ordinary Business of Life: Issues in Business, Government, and Macroeconomics. (; 3 cr. ; A-F only; Every Fall)
The world of economics is sometimes referred to as the study of the ordinary business of life. In this course we will discover, reflect on, and teach ourselves about a selected group of topics in the fields of business management and economics. While the first quarter of our meetings will be on business and economic history to provide context (the "Economic Revolution," the Federal Reserve System, and the role of government in the economy), the second quarter of class will analyze macro issues related to the domestic and world economies (economic growth, income inequality, the New Economy, and globalization). The third and fourth quarters of our time together will be micro-related. As part of this class, we will investigate the fields of leadership and business ethics through a series of readings and films. In addition, throughout the term some of our class discussions will be dedicated to helping you make your transition to and navigation of the University a smooth one. prereq: freshman

APEC 3001. Applied Microeconomics: Consumers, Producers, and Markets. (; 4 cr. ; Student Option; Every Fall & Spring)
Consumer/producer decisions. Theory of supply/demand. Markets, pricing, investment, effect regulation, market failures. prereq: [[1101 or ECON 1101 or 1101H or ECON 1101H], [MATH 1142 or MATH 1271]] or instr consent; intended for undergrads in [Ag/Food Bus Mgmt, Appl Econ]

APEC 3002. Managerial Economics. (; 4 cr. ; Student Option; Every Fall & Spring)
Microeconomic theory, its application to managerial problems. Introduction to regression analysis, demand analysis, demand function estimation, forecasting, cost function estimation, resource allocation decisions, linear programming, market structure, pricing policy, risk analysis, investment analysis. prereq - ApEc 3001 or Econ 3101 AND SCO 2550 or Stat 3011

APEC 3003. Introduction to Applied Econometrics. (4 cr. ; A-F only; Every Spring)
Econometrics is the core empirical methodology used in economics. It allows economists (and others) to learn about the world through data in non-experimental situations. This course teaches student how to use common types of econometric analysis to answer research questions in an experiential learning environment. prereq: APEC 1101 or equiv., STAT 3011 or equiv.

APEC 3004. Management Science Workshop. (2 cr. ; Student Option; Every Spring)
The Management Science Workshop focuses on quantitative techniques from management science relevant to applied economics and agribusiness management problems, emphasizing applications of linear and nonlinear programming to decision problems of firms and other organizations. The economic foundations of the models and the economic interpretations of their solutions are emphasized. Specific topics include production planning, logistics, scheduling, inventory management, and network models. The course is lab-based and all applications use Excel, with the Solver add-in, as the software platform; however, more specialized software may be introduced. prereq: ApEc 3001 or Econ 3101

APEC 3006. Applied Macroeconomics: Government and the Economy. (; 3 cr. ; Student Option; Every Fall & Spring)
Public sector and market economics. Public goods, externalities, and other allocation issues. Government and stabilization of national economy. Overview of new classical/ Keynesian models. Principles of taxation. Individual income tax. Sales, business, and property taxes. prereq: [[1102 or Econ 1102], [3001 or Econ 3101]] or instr consent

APEC 3007. Applied Macroeconomics: Policy, Trade, and Development. (GP; 3 cr. ; Student Option; Every Fall & Spring)
Indicators of economic development, growth in trade, and welfare of developing countries. Globalization. Drivers of growth, productivity, technical change, and research. Comparative advantage. Distribution consequences of trade. Trade policy instruments/institutions. prereq: [1101 or ECON 1101], [1101H or ECON 1101H], [1102 or ECON 1102], [1102H or ECON 1102H]; 3001, 3006 recommended

APEC 3061. Economic Development in Contemporary Africa. (GP,SOCS; 3 cr. ; A-F only; Every Spring)
Major socio-economic challenges that confront post-independence sub-Saharan African countries in quest for sustainable

economic development/growth. Causes of persistent poverty/inequality, role of institutions/ multinational agencies. Growth in 21st century. prereq: 1101 or ECON 1101

APEC 3071. Microeconomics of International Development. (; 3 cr. ; Student Option; Every Fall)
Characteristics and performance of peasant agriculture; potential role of agriculture in economic development, and design of economic policies to achieve agricultural and economic development; role of women in agricultural development. prereq: 1101, 1102, Econ 1101, 1102, or instr consent

APEC 3202. An Introduction to the Food System: Analysis, Management and Design. (3 cr. ; Student Option; Every Fall)
Introduction to use of systems thinking for exploration of problems in contemporary food system from multidisciplinary perspective. System concepts. Historical evolution of food system. Analysis, management, design.

APEC 3411. Commodity Marketing. (; 3 cr. ; Student Option; Every Fall)
Economic concepts related to marketing agricultural commodities. Conditions of competitive markets, historical perspectives on market institutions/policy, structural characteristics of markets, policies/regulations affecting agricultural marketing of livestock, crop, and dairy products. prereq: 1101 or Econ 1101

APEC 3451. Food and Agricultural Sales. (; 3 cr. ; Student Option; Every Spring)
Professional selling of agricultural and food products. Students build/refine sales abilities, identify/qualify prospects, deliver sales presentations, close the sale. Principles of market research. prereq: 1101 or Econ 1101

APEC 3480. Topics in Applied Economics. (; 1-4 cr. [max 24 cr.] ; Student Option; Every Fall, Spring & Summer)
Lectures and discussion on applied economics subjects. Topics specified in Class Schedule.

APEC 3501. Agribusiness Finance. (; 3 cr. ; Student Option; Every Fall)
Analysis of financing and investment strategies for agribusiness firms and their effects on liquidity, solvency, and profitability. Analysis of financial institutions, markets, and instruments. Management problems, issues facing financial intermediaries serving agriculture. prereq: [[1251 or Acct 2050], 60 cr] or instr consent

APEC 3511. Retail Supermarket Case Analysis. (3 cr. ; A-F only; Every Fall)
This is a course in which students will work in teams to address a real-world issue faced by a retail food company. The National Grocers Association (NGA) determines the particular case annually, and the event is held at their annual meeting along with the Industry-University Coalition. Elements of the solution may involve marketing, budgeting, strategic pricing, and market research. Students are asked to prepare a presentation to a group of retail grocers at the annual meeting of NGA, typically held in Las Vegas, NV. Students will complete weekly assignments in which they lay the groundwork for the competition. The competition is held in February. During the Fall semester, students engage in research and evaluation of options on the case study. During the Spring semester, students finalize their presentations and compete at the NGA Show with teams from about 18 other universities that are members of the NGA Industry-University Coalition. The competition involves a 15-minute presentation on the first day with 10 minutes of questions and answers. Students are guaranteed to present twice with a second presentation on the second day. Four finalists are chosen for the finals on the third day with the winning team being recognized at the evening banquet and a cash prize. Students will also have the opportunity to interact with industry representatives at the show in a number of ways during the four days. prereq: APEC 1101 or 1101H or Econ 1101 or 1101H

APEC 3521. Agribusiness and Food Supply / Value Chain Issues. (; 3 cr. ; Student Option No Audit; Every Spring)
The course is an introductory survey of the global food economy and current issues. Included in this course is information on marketing channels, value chains, and supply chains; factors that make the global food economy unique relative to other industries; and current policy topics including labeling, Farm Bill, and trade.

APEC 3551. Concept Design and Value-Added Entrepreneurship in Food, Agricultural and Natural Resource Sciences. (; 3 cr. ; A-F only; Every Fall)
Explore the core skills required by entrepreneurs in opportunity identification and problem framing that lead to creating viable concepts that provide solutions to real consumer challenges. Students will tackle innovation challenges from an in-depth exploration of entrepreneurial and design thinking and learn how to incorporate these skills into their future professional work. Master techniques for exploring problems from a systems viewpoint through a series of hands-on projects from concept design to product mapping and consumer testing. Students get to select a project of their choosing directly from their major of study and will pitch their new product or service concept to an expert panel.

APEC 3562. Fundamentals of Rural Property Appraisal. (3 cr. ; Student Option; Every Fall)
There are two major objectives for this course. One is to develop an understanding of the fundamentals and principles of valuing and appraising rural property, especially farmland. Students will gain an appreciation of what an appraiser does, what constitutes a sound appraisal and how to apply this knowledge in their careers. The second major objective is to show students how to evaluate an individual land purchase. Buying land involves many individual factors that must be considered. prereq: 1101 or 1101H or Econ 1101

APEC 3611W. Environmental and Natural Resource Economics. (ENV,WI; 3 cr. ; Student Option; Every Spring)
Concepts of resource use. Financial/economic feasibility. External effects, market failures. Resource use, environmental problems. Measuring impacts of resource development. Economics of alternative resource programs, environmental strategies. prereq: 1101 or ECON 1101 or 1101H or ECON 1101H

APEC 3811. Principles of Farm Management. (; 3 cr. ; Student Option; Every Fall)
Strategic and operations aspects of farm management; financial analysis, budgeting, strategic management; marketing plan and control; enterprise and whole farm planning and control; investment analysis, quality, risk, and personnel management. prereq: 1101 or Econ 1101

APEC 3821. Retail Center Management. (; 3 cr. ; Student Option; Every Spring)
Management of garden centers, grocery stores, and other retail units selling perishable agricultural products. prereq: [1101 or Econ 1101], [1251 or Acct 2050]

APEC 3841. Agricultural Cooperatives and Mutuals. (3 cr. ; Student Option; Every Fall)
Introduction to the cooperative and mutual form of business organization. Extensive applications to agricultural, food, and consumer cooperatives are used. The class is an active-student learning process with a distance learning component. prereq: ApEc 1101 or 1101H or Econ 1101 or 1101H

APEC 3993. Directed Study in Applied Economics. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

APEC 3994. Directed Research in Applied Economics. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

APEC 4311. Tourism Development: Principles, Processes, Policies. (; 3 cr. ; Student Option; Every Spring)
Evolution of tourism industry; economic, environmental, and sociocultural impacts of tourism development; influence of government policies and organizations; models and tools needed for successful development;

consequences of development activities and ways to involve stakeholders in decisions. prereq: 1101, 1102 or Econ 1101, 1102

APEC 4451W. Food Marketing Economics. (CIV,WI; 3 cr. ; Student Option; Every Fall)
Economics of food marketing in the United States. Food consumption trends, consumer food behavior, marketing strategies, consumer survey methodology, food distribution/ retailing system. Policy issues related to food marketing. Individual/group projects. prereq: [[1101 or Econ 1101], [1101H or Econ 1101H], SCO 2550 or STAT 3011 or equiv, 60 cr] or instr consent

APEC 4461. Horticultural Marketing. (; 3 cr. ; A-F only; Every Spring)
Major areas in horticultural marketing. Difference between horticultural products and commercial commodities. Core marketing components that should be used by every small horticultural business. Approaches to consumer research.

APEC 4481. Futures and Options Markets. (; 3 cr. ; Student Option; Every Spring)
Economics of futures/options trading in theory/ application. Basis/price relationship in storable/ nonstorable commodities. Hedging/commercial use of futures/options contracts. Speculation. Pricing efficiency. Market performances/ regulation. prereq: [[3001 or Econ 3101], [AnSc 3011 or SCO 2550 or Stat 3011],] or instr consent

APEC 4501. Financial Modeling: Spreadsheet Applications in Finance, Management, and Marketing. (; 2 cr. [max 3 cr.] ; A-F or Audit; Every Spring)
Designing/implementing solutions to problems in finance, management, and market analysis with MS Excel? spreadsheet, VBA language, MS Power BI and Power Excel tools. Exercises cover topics such as proforma financial statement analysis, efficient portfolio derivation, VBA macros and functions, and building interactive dashboards for analysis of market trends. prereq: [APEC 3501 or FINA 3001], [APEC 1251 or ACCT 2050]

APEC 4821W. Business Economics and Strategy. (WI; 3 cr. ; Student Option; Every Spring)
Strategic management for production, processing, wholesaling, retailing, and service. Strategy formulation, implementation, and control. Business plans. Case study analysis. prereq: 3002, [3501 or FINA 3001], and [ACCT 3001 or MGMT 3001 or MKTG 3001]

APEC 5031. Methods of Economic Data Analysis. (; 3 cr. ; Student Option; Every Fall)
Statistical and econometrics techniques for applied economists. Theory and application of multivariate regression model using data sets from published economic studies. Emphasis on use of statistical techniques to understand market behavior. prereq: Math 1271, Stat 5021, knowledge of matrix algebra

APEC 5032. Economic Data Analysis for Managerial and Policy Decisions. (; 3 cr. ; Student Option; Every Spring)
Statistical and econometric methods for the analysis of large data sets to support managerial and policy decisions. Methods for organizing, accessing, and ensuring the quality of data. Estimation techniques include panel data methods, limited dependent variable models, and time series analysis. Clarity of reporting and design of procedures for maintaining and updating data estimates. prereq: 5031 or instr consent

APEC 5151. Applied Microeconomics: Firm and Household. (; 3 cr. ; Student Option; Every Fall)
Quantitative techniques for analysis of economic problems of firms and households. Links between quantitative tools and economic analysis Regression analysis, mathematical programming, and present value analysis. prereq: (APEC 3001, Math 1272, and Math 2243) or equiv or grad student or instr consent

APEC 5152. Applied Macroeconomics: Income and Employment. (; 3 cr. ; Student Option; Every Spring)
Static general equilibrium open economy models and simple business cycle models that examine economic growth, business cycles, and fiscal and monetary policy. Input-output analysis and large scale econometric models. Sources/properties of economy and sector-wide data. Empirical applications. prereq: 3001 or or Math 1271 or Math 2243 or equiv or grad student or instr consent

APEC 5321. Regional Economic Analysis. (; 3 cr. ; Student Option; Every Spring)
Development patterns. Role of resources, transportation, and institutional constraints. Migration, investments in growth and change. Economic information in investment and location decisions. Economic development policies and tools. Economic impact analysis. prereq: 3006 or ECON 3102 or instr consent

APEC 5411. Commodity Marketing. (3 cr. ; Student Option; Every Fall)
Economic concepts related to marketing agricultural commodities. Conditions of competitive markets, historical perspectives on market institutions/policy, structural characteristics of markets, policies/regulations affecting agricultural marketing of livestock, crop, and dairy products. prereq: graduate student and 1101 or Econ 1101

APEC 5451. Food Marketing Economics. (; 3 cr. ; A-F or Audit; Every Fall)
Economics of food marketing in the United States. Food consumption trends. Consumer food behavior, expenditure, data collection. Consumer utility models, demand forecasting. Food distribution system. Changes in supply chain, industry structure that serves retail food outlets. Individual/group projects.

APEC 5481. Futures and Options Markets. (; 3 cr. ; Student Option; Every Spring)
Economic concepts related to futures/options trading. Hedging, speculation.

APEC 5511. Labor Economics. (; 3 cr. ; Student Option; Periodic Fall)
Theoretical foundations of labor markets. Intertemporal/household labor supply. Demand for labor, efficiency wages. Human capital theory, unemployment, migration decisions. Analysis of econometric research applied to labor policy issues such as minimum wage, tax policy, social insurance, education. prereq: [[3001 or Econ 3101 or PA 5021], [PA 5032 or equiv]] or instr consent

APEC 5711. Agricultural and Environmental Policy. (; 3 cr. ; Student Option; Periodic Spring)
This is a topics course which changes from year to year. This year we will consider the relationship between famines and armed conflict. The general supposition (conventional wisdom) is that famines are the result of the forces of nature ? floods, droughts, and earthquakes. In fact, the evidence supports the argument that famines result from the actions of man to do harm to others. We will consider a variety of cases including the Irish Famine of the 19th Century, the hunger after the conclusion of World War II, and the Bengal Famine of 1948. prereq: 3001 or Econ 3101

APEC 5721. Economics of Science and Technology Policy. (; 3 cr. ; Student Option; Every Fall)
This course covers the economic effects of science and technology policies, such as intellectual property rights. The course considers the effects of policies on: (1) the economic growth and development levels of countries; (2) the international technology transfers that occur between countries through trade, foreign direct investment, and licensing arrangements; and (3) differences in the economic welfare of developed and developing countries. prereq: APEC 3001 or ECON 3101 or instr consent

APEC 5731. Economic Growth and International Development. (; 3 cr. ; Student Option; Periodic Spring)
Economics of research and development. Technical change, productivity growth. Impact of technology on institutions. Science and technology policy. prereq: 3002 or [Econ 3101, Stat 3022]; Econ 4211 recommended

APEC 5751. Global Trade and Policy. (; 3 cr. ; Student Option; Every Fall)
Trade policies of import/export nations, gains from trade, trade negotiations/agreements. Free trade and common market areas. Exchange rate impacts. Primary commodities and market instability. Current trade issues. prereq: 3001 or Econ 3101 or PA 5021

APEC 5821. Business Economics and Strategy. (3 cr. ; Student Option; Every Spring)
Strategic management for production, processing, wholesaling, retailing, and service. Strategy formulation, implementation, and control. Business plans. Case study analysis. prereq: graduate student and 3002, [3501 or FINA 3001], and [ACCT 3001 or MGMT 3001 or MKTG 3001]

APEC 5831. Food and Agribusiness Marketplace. (2 cr. ; A-F or Audit; Every Spring)
This is a graduate student survey course of the industrial organization and current policy issues in the food and agribusiness marketplace. It represents a collaboration between the

College of Food, Agricultural, and Natural Resource Sciences and the Carlson School of Management. The course uses short readings and speakers. A comprehensive look at all of the sectors in the food and agribusiness value chain is described. Topics include food policies (Farm Bills, food stamps, food labeling, and similar topics); environmental policies (water, invasive species, agriculture production and similar topics); and industrial organization issues (marketing and production contracts, overview of firm strategic orientation, distribution and similar topics). Readings, guest speakers, and presentations are used. prereq: graduate student

APEC 5832. The Business of Food Systems. (1 cr. ; Student Option; Every Fall)
This is a graduate survey course to introduce students to the Minnesota food industry through its regulatory process, research and development, and industry structure. It is an integrated week long course that includes field study tours of Minnesota agriculture and food economy coupled with classroom instruction. Each year the course will focus on two Minnesota industries such as dairy, beef, soybean, corn, potatoes, and other agricultural and food industries. The course has been developed through a collaboration with College of Veterinary Medicine, School of Public Health, and College of Food, Agricultural, and Natural Resource Sciences.

APEC 5841. Agricultural Cooperatives and Mutuals. (3 cr. ; Student Option; Every Fall)
Introduction to cooperative and mutual form of business organization. Extensive applications to agricultural, food, and consumer cooperatives are used. Active-student learning process with a distance learning component.

APEC 5990. Special Topics in Applied Economics. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Special topics courses - focus on areas not covered in regularly offered courses. prereqs: graduate student or instructor consent

APEC 5991. Independent Study in Applied Economics. (1-4 cr. [max 32 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study and supervised reading/ research on subjects/problems not covered in regularly offered courses. prereq: instr consent

Applied Professional Studies (APS)

APS 5100. Topics in Applied Professional Studies. (; 1-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Topics in Applied Professional Studies. prereq: dept consent

APS 5101. Ecological Design for Horticulture. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Polyculture and Ecological Design is the design science of assembling plants into ecologically balanced systems. Natural polycultures are self-supporting plant communities in forests, wetlands, and prairies. Investigate ecological functions and services that are important components for sustainable horticultural design. Learn to apply the ecological landscape design language and technique while using the permaculture design process to create ecologically functional plant communities. Crucial discussions will assess the solutions in horticultural design for adapting to accelerated climate disruption, and follow natures momentum as a guide to sustainable production systems. Lab sessions will demonstrate, and you will develop, the skills and foresight needed to assess, research, concept, design, and present polycultures in a sequential and professional process.

APS 5102. Garden Design: Theory and Application. (; 2 cr. ; A-F or Audit; Periodic Spring)
This course provides an overview of the garden design process, the analysis and conceptual design of the landscape, exploration of the design characteristics of plants, sustainable design and a descriptive journey into several historical garden styles. You will be introduced to a variety of topics, including the design process, basic design principles, and the basic concepts of graphic communication in garden design. A working knowledge of design process and principles is critical to quality design. This course is intended to strengthen student awareness and knowledge of design rather than fully develop the skills necessary to draw, develop and implement garden designs. This course is different from fact-based horticulture science courses. Although you will be held responsible for learning a broad range of principles and processes in this course, there are typically no absolute right answers relative to design assessment and critique. What is more important is that you gain the ability to articulate and assess design character and quality and give evidence of your thought process.

APS 5103. Integration of Sustainable Agriculture Concepts. (3 cr. ; A-F only; Every Fall)
Biodiversity, ecological balance, nutrient cycling, soil quality. Organic practices of tillage, fertility management, weed control, insect control. Specific practices compared with conventional/integrated pest management. Economic analysis of both organic/conventional practices. prereq: AGRO 1101 or AGRO 1103 or BIOL 1001 or BIOL 1009 or HORT 1001 or HORT 6011 or instr consent, [sr or grad student admitted to MPS in horticulture] Because of the 5xxx level, undergraduates need permission numbers to register. Students can obtain permissions by writing to: reefx001@umn.edu

APS 5201. Career and Job Search Preparation for Graduate Students. (; 1 cr. ; S-N only; Every Fall & Spring)
Job search and career development tools. Goals, networking, job search, resume/CV, interviewing. Assignments include resume/CV, informational interview, career development plan. prereq: dept consent

APS 5901. Microeconomics for High School Teaching. (3 cr. ; A-F only; Every Summer)
This is an online course intended for in-service and pre-service teachers who want to build or enhance their content knowledge in microeconomics and their pedagogical skills in teaching microeconomics to high school students. The course will include strategies for developing curriculum and instruction for microeconomics that engage students of diverse backgrounds. prereq: The prerequisites for this course are: licensed secondary school teachers in social studies, business, consumer science, or agricultural education; or pre-service secondary school teachers in a teaching licensure program in social studies, business, consumer science,and dept consent

APS 5950. Topics in APS. (; 1-3 cr. [max 18 cr.] ; A-F only; Periodic Fall, Spring & Summer)
Topics in APS

Arabic (ARAB)

ARAB 1101. Beginning Arabic I. (5 cr. ; Student Option No Audit; Every Fall & Summer)
Oral practice, reading, comprehension, basic grammar.

ARAB 1102. Beginning Arabic II. (5 cr. ; Student Option No Audit; Every Spring & Summer)
Comprehension, oral practice, reading of standard Arabic. prereq: 1101 or instr consent

ARAB 3101. Intermediate Arabic I. (5 cr. ; Student Option No Audit; Every Fall)
Advanced grammar/conversational practice. Reading Arabic texts.

ARAB 3102. Intermediate Arabic II. (5 cr. ; Student Option No Audit; Every Spring & Summer)
Advanced grammar, analyses of readings, oral comprehension. prereq: 3101 or instr consent

ARAB 3290. Arabic Language Teaching Tutorial. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Students tutor beginning students of Arabic and are part of department's Arabic language team. prereq: Grade of A in 3102/4122

ARAB 3542. Medieval Islam. (; 3 cr. ; Student Option;)
Islamic dynasties, Mamluks and Mongols, Crusaders and Assassins. Abbasid Caliphate's disintegration and rise of Seljuk Turks.

ARAB 3811. Egyptian Colloquial Arabic I. (3 cr. ; A-F only; Periodic Fall)
This course is designed for students of Arabic who have taken a minimum of two semesters of Modern Standard Arabic (ARAB 1101 and 1102), or the equivalent thereof as determined by a placement test. The course provides training in the fundamentals of Egyptian Colloquial Arabic, one of the most widely-spoken and widely-understood Arabic vernaculars. Students practice the expression and comprehension of communicative needs in a variety of daily-life, informal situations. In addition, they are acquainted with a range of authentic cultural materials (film, TV broadcasts, songs) in Egyptian Arabic. The course relies heavily on oral practice and class periods are designed to be interactive. This

course is open to non-native speakers and non-heritage learners of Arabic only. It cannot be taken in lieu of ARAB 3101 or ARAB 3102 to fulfill the CLA second language requirement; it can, however, be taken concurrently with these classes. Credit will not be granted if student has already taken ARAB 3900 Fall 2015, Summer 2016

ARAB 3812. Egyptian Colloquial Arabic II. (3 cr. ; A-F only; Every Spring & Summer)
As the continuation of ARAB 3811 Egyptian Colloquial Arabic I, this course focuses on further developing oral expression and comprehension skills in Egyptian Arabic. By practicing the target language, students explore important elements of Egyptian culture and history and engage with a dynamic cross-section of authentic media and cultural material including film, television, news, and music. The course relies heavily on oral practice and class periods are designed to be interactive. Textbooks used are Samia Louis' Kallimni 'Arabi and Kallimni 'Arabi Aktar. The course is designed for students of Arabic who have completed Egyptian Colloquial Arabic I, or the equivalent thereof, as determined by a placement test. This course is open to non-native speakers and non-heritage learners of Arabic only. As a 3-credit course, it cannot be taken in lieu of ARAB 3101 or ARAB 3102 to fulfill the CLA second language requirement. It can, however, be taken concurrently with these classes. Credit will not be granted if student has already taken ARAB 3900 Spring 2016, Summer 2016

ARAB 3813. Jordanian Colloquial Arabic. (3 cr. ; A-F only; Periodic Spring)
This course is designed for students of Arabic who have taken minimum two semesters of Modern Standard Arabic (ARAB 1101 & 1102), or the equivalent thereof as determined by a placement test. The course provides training in the fundamentals of Jordanian and Palestinian spoken Arabic, which is widely understood all over the Arab world, and is also very similar to the Arabic spoken in Syria and Lebanon. This course specifically revolves around the development of your speaking, listening and transcultural skills. It will provide you with many opportunities to speak, watch, and listen to Jordanian Arabic and to learn about the cultures and societies of the Levant. The course aims to increase your ability to successfully navigate the variety of Arabic language registers, and to substantially improve your cultural competence. This course is open to non-native speakers and non-heritage learners of Arabic only. As a 3-credit course, it cannot be taken in lieu of ARAB 3101 or ARAB 3102 to fulfill the CLA second language requirement. It can, however, be taken concurrently with these classes.

ARAB 3900. Topics in Arabic. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics specified in course guide.

ARAB 3993. Directed Study. (1-3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
For advanced students with individual faculty members. Prereq-instr consent, dept consent, college consent.

ARAB 4101. Beginning Arabic I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall & Summer)
Oral practice, reading, comprehension, grammar.

ARAB 4102. Beginning Arabic II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring & Summer)
Comprehension, oral practice, reading of standard Arabic. Meets with 1102. prereq: 4101 or equiv

ARAB 4121. Intermediate Arabic I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Advanced grammar, conversational practice. Reading Arabic texts. prereq: 4102 or equiv

ARAB 4122. Intermediate Arabic II for Graduate Student Research. (5 cr. ; Student Option No Audit; Periodic Spring & Summer)
Advanced grammar, analyses of readings, oral comprehension. Meets with 3102. prereq: 4121 or equiv

ARAB 4811. Egyptian Colloquial Arabic I for Graduate Research. (3 cr. ; A-F only; Periodic Fall)
This course is designed for students of Arabic who have taken a minimum of two semesters of Modern Standard Arabic (ARAB 1101 and 1102), or the equivalent thereof as determined by a placement test. The course provides training in the fundamentals of Egyptian Colloquial Arabic, one of the most widely-spoken and widely-understood Arabic vernaculars. Students practice the expression and comprehension of communicative needs in a variety of daily-life, informal situations. In addition, they are acquainted with a range of authentic cultural materials (film, TV broadcasts, songs) in Egyptian Arabic. The course relies heavily on oral practice and class periods are designed to be interactive. Meets with ARAB 3811.

ARAB 5040. Readings in Arabic Texts. (; 3 cr. [max 9 cr.] ; A-F only; Every Fall)
Post-advanced study of extensive, complex original Arabic texts and development of students' Arabic discussion and writing skills in the realms of literature, academia, media and/or business. All primary and secondary readings, assignments, in-class analysis and discussion are done fully in Arabic. Topics specified in Class Schedule.

ARAB 5041. Classical and Modern Arabic Prose. (3 cr. ; A-F only; Periodic Fall & Spring)
In this class, students read extensive, complex, original Arabic texts and develop their academic discussion and writing skills in Arabic. The course covers a substantial number of Arabic literary texts of different genres and time periods: excerpts of the Prophet's biography, classical treatises and travel writing, stories from the "1001 Nights," 20th-century short stories, and short novels. To contextualize the literary texts, students read secondary texts also composed in Arabic and engage with Arabic audiovisual materials (video clips, TV interviews, songs) in class and at home. In-class analysis and discussion of the texts is conducted exclusively in Arabic. prereq: ARAB 5102 or the equivalent thereof as established by a placement test

ARAB 5101. Advanced Arabic I. (4 cr. ; Student Option No Audit; Every Fall)
Advanced readings in classical/modern Arabic. Compositions based on texts. prereq: Grade B- or higher in 3102 or instr consent

ARAB 5102. Advanced Arabic II. (4 cr. ; Student Option No Audit; Every Spring)
Readings of Arabic texts. Writing compositions based on texts. Continuation of 5101.

ARAB 5992. Directed Readings. (; 1-3 cr. ; Student Option; Every Fall & Spring)
Individual research and readings for advanced students.

Arabic Lang/Culture in Morocco (MRCO)

MRCO 1301. Accelerated Colloquial Moroccan Arabic I. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 1401. Intensive Colloquial Moroccan Arabic I. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 1701. Accelerated Modern Standard Arabic I. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 1801. Intensive Beginning Modern Standard Arabic. (10 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 2301. Accelerated Colloquial Moroccan Arabic II. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 2701. Accelerated Modern Standard Arabic II. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 2801. Intensive Low Intermediate Modern Standard Arabic. (10 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3005. Introduction to the Arabic Newspaper. (3-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Basic newspaper vocabulary/structure. Analysis of headlines.

MRCO 3006. Media Arabic. (3-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Media vocabulary sufficient to grasp gist of newspaper article/broadcast. Graded newspaper readings from Middle Eastern dailies. Taped material from Moroccan television/radio.

MRCO 3007. Gender, Modernization, and Social Change in Morocco. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Interrelationships between gender, modernization, and social change in post-

colonial Morocco. Emphasizes social institutions, religion, development, traditions, and contemporary issues.

MRCO 3008. Trajectories of Representation: Indigenous and Western Images of Morocco. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Contemporary Moroccan literature. Selected texts, their social/political contexts. Issues that have shaped national literature and postcoloniality since 1950s.

MRCO 3009. Moroccan Society and Culture. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Political, economic, societal, and cultural trends in old/modern Moroccan society. Walking tour, discussions, guest lecturers.

MRCO 3010. Readings in Contemporary Maghrebi Literature. (3-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MRCO 3011. Readings in Islamic Texts I. (3-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MRCO 3012. Readings in Islamic Texts II. (3-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MRCO 3013. Islam: Past and Present. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MRCO 3014. Morocco: Changes and Cultural Identities. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The course examines the major social, cultural, political, intellectual, and human rights transformations in Morocco over the last four decades, stressing the undergoing tensions between the secular liberals and conservatives (especially Islamists) across gender, religion, language, and sexual politics. It also explores changing identities and the complexity of Moroccan cultural politics. It is based on a balanced combination of the exploration of major academic scholarship from a comparativist and multi-disciplinary perspective, and insight into the lives and experiences of Moroccans, with particular focus on the inhabitants of Fez and the region. Above all, it traces the blended trajectories and trends in Moroccan society and culture, stressing the pressuring challenges to Moroccan national identities posed by globalization, secularism, conservatism, and fundamentalism.

MRCO 3599. Morocco in Context. (1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3701. Accelerated Modern Standard Arabic III. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3702. Accelerated Modern Standard Arabic IV. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3801. Intensive Intermediate Modern Standard Arabic. (10 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3802. Intensive High Intermediate Modern Standard Arabic. (10 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3803. Intensive Low Advanced Modern Standard Arabic. (10 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3804. Intensive Advanced Modern Standard Arabic. (10 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3901. Accelerated Modern Standard Arabic V. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3902. Accelerated Modern Standard Arabic VI. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3903. Accelerated Modern Standard Arabic VII. (6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3911. Proficiency Arabic I. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MRCO 3993. Directed Research. (1-3 cr. ; Student Option; Every Fall, Spring & Summer)
This directed research provides students with the opportunity to investigate a cultural or societal topic related to Moroccan society, history, or culture under the supervision of a designated program faculty member. Students design the topic, readings, and methodology at the start of the semester with the faculty member and meet weekly with the faculty member to discuss topic development, additional readings (as needed), additional resources and considerations, and course paper progress. Semester-only students enrolled in the 3-credit research option will have a classroom component (Morocco in Context) as well as individualized instruction; academic year students will have all contact hours through individual faculty meetings. Semester and academic year students enrolled in the course for 3 credits will receive the same amount of individualized contact hours and put forth a total of 100 hours of research effort over the course of the semester. In rare circumstances, a semester student may enroll in a 1-credit research project if they completed the summer program and are continuing into the semester. They have the option to join the semester group for the Morocco in Context discussions and will be graded only on their research project.

Architecture (ARCH)

ARCH 1281. Design Fundamentals I. (AH; 4 cr. ; A-F only; Every Fall)
Using architecture broadly defined, students will develop essential habits of work and mind, as well as an ability to understand the relationship between drawing, making and exploring. The course will introduce and begin to build an understanding of the role of iteration and critique, as well as traditional and contemporary modes of representation in architecture.

ARCH 1621V. Introduction to Critical Inquiry in Practice. (WI; 3 cr. ; A-F only; Every Fall)
This course introduces beginning architecture and landscape architecture students to critical inquiry in disciplinary research and professional practice through guest lectures, readings, and discussions. Weekly exercises help develop a beginning-level understanding of the depth and breadth of architectural inquiry in its contemporary context, i.e., as a complex, multi-dimensional, multidisciplinary endeavor with myriad ethical implications. For the final project, students will extend individual curiosity from course materials and presentations into a meaningful proposal for basic or applied research. Students who are engaged in course materials will begin to understand: architecture, landscape architecture, and design more broadly as an ecology of practices; the historical, contemporary, and projective framework for architecture education; the historical, contemporary, and projective framework for architecture as a profession; and specifically how these relate especially in this region.

ARCH 1621W. Introduction to Critical Inquiry in Practice. (WI; 3 cr. ; A-F only; Every Fall)
This course introduces beginning architecture and landscape architecture students to critical inquiry in disciplinary research and professional practice through guest lectures, readings and discussions. Weekly exercises help develop a beginning-level understanding of the depth and breadth of architectural inquiry in its contemporary context, i.e., as a complex, multi-dimensional, multidisciplinary endeavor with myriad ethical implications. For the final project, students will extend individual curiosity from course materials and presentations into a meaningful proposal for basic or applied research. Students who are engaged in course materials will begin to understand: architecture, landscape architecture and design more broadly as an ecology of practices; the historical, contemporary and projective framework for architecture education; the historical, contemporary and projective framework for architecture as a profession; and specifically how these relate especially in this region.

ARCH 2281. Design Fundamentals II. (4 cr. ; A-F only; Every Spring)
Foundation architectural design studio. Design principles, technical drawing, material manipulation. prereq: 1281, [Arch mjr or pre-arch]

ARCH 2301. Drawing and Critical Thinking. (4 cr. ; A-F only; Every Fall & Spring)
This course provides an in-depth foundation for understanding how drawing functions as a

discipline-specific way of thinking, brings self-critical precision to non-verbal production, and supports processes of conceptual exploration. prereq: pre-arch major or BDA major; no prereq in summer

ARCH 3150. Topics in Architecture. (; 1-6 cr. [max 24 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics in architecture design, theory, representation, or history.

ARCH 3211. BDA: Image, Authorship, and Architecture. (2 cr. ; A-F only; Periodic Fall & Spring)
Understanding the discipline and practice of architecture as fundamentally grounded in visual literacy, communication and authorship. Assignments and discussion help students: identify and characterize authorship of imagery; critically evaluate and converse about authorship of imagery; understand one's own authorship and its potential for growth, exploration and expression of visual themes in architecture.

ARCH 3212. BDA: Analytical Modeling of Contemporary Architecture. (3 cr. ; A-F only; Periodic Fall & Spring)
Insight into analytical modeling as one of the most important tools for a designer. Exercises, activities and iterative making of analytical models will help students to gain insight into works of contemporary architecture; analyze constituent elements and systems of form, space and order; investigate and make visible the underlying conceptual notions that generated the work; explore physical modeling as modes and techniques of analysis and representation; explore the specific issue of scale in analysis, representation and design resolution; read 2-D architectural drawings and translate them into 3-D physical form; and generally improve physical modeling skills.

ARCH 3221. BDA: Masonry Design and Construction. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This is a fast paced, high-energy course that combines modern design tools with the art and craft of making through a hands-on design-build process. This workshop is an opportunity for architecture students to learn and practice masonry design and construction by working directly with the Bricklayers & Allied Craftworkers (BAC) Local Union (Minnesota/ North Dakota) Apprenticeship Training Center and in conjunction with the International Masonry Institute (IMI).

ARCH 3222. BDA Box Problem. (2 cr. ; A-F only; Periodic Fall & Spring)
Students gain insight into the process of making by designing a wooden box that addresses a specific ritual, ceremony, event or activity of their choosing. The box will be evaluated on creativity, technique, craft, and risk. Introduction and practice with a variety of woodworking joints and techniques used to construct a wooden box.

ARCH 3223. BDA: Screen Test: Metal Work. (2 cr. ; A-F only; Periodic Fall & Spring)
Understanding the screen as an architectural element and screening as an architectural device. Understanding the nature of making and material craft in the design process, specifically metals and metal alloys designed and fabricated as architectural screen panels. Students develop: ability to understand, work with and transform metals; design vocabulary around screens, screening and patterns in architecture; design ideas as material assemblies and spatial propositions; verbal and visual communication skills as part of the design process; criteria for making design decision relevant for using screens, screening and patterns in architecture.

ARCH 3231. Intensive Applications Design Workshop. (3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
BDA design core workshops develop your ability to critically approach a broad range of conditions through the lens of architecture. This course will focus on critical inquiry of tangible architectural attributes such as material (assembly), site (context), or program (need). This workshop foregrounds analysis of measurable, physical and specific conditions, and favors local project sites and/or precedent projects. The course offers a structure for moderately directed learning (including guided peer review), emphasizes iteration and process, and offers an opportunity to discover where and how your own interests align with broader opportunities as an emerging designer in architecture and/or other allied disciplines and design fields.

ARCH 3250. Design Workshop. (; 1-6 cr. [max 54 cr.] ; A-F only; Every Fall & Spring)
Design process as it relates to architecture. Hands-on projects involving interactive design process. Students develop rigorous/inventive graphic means of communicating. prereq: 2281, [Arch BA or BDA major]

ARCH 3261. BDA: The Art of Daylighting Design: Exquisite Rooms. (3 cr. ; A-F only; Periodic Fall & Spring)
Daylighting design and luminous phenomena have long captured the imagination of designers and architects. The beauty and power of light and shadow inspires the work of the greatest architectural masters. This BDA Workshop explores the many roles of daylighting in architectural design and how it is shaped by the intersection of both poetic and performance goals and aspirations. A select group of exquisite rooms of leading modern and contemporary architects will be compared and contrasted to gain insight into larger luminous design concepts, principles, strategies, and lessons on the art of daylighting design. Physical and computer models, photography, rendered drawings, diagramming, and computer analysis will be explored to understand the daylighting design philosophies, strategies, and details of 'Masters of Light' and the application of daylighting design lessons to an individual daylight investigation. Learning objectives are: to compare and contrast poetic and performance daylighting design concepts, principles, and strategies of modern and contemporary masters; to develop a comparative knowledge of daylighting theories and practices from case studies of exquisite rooms to gain the knowledge and skills necessary to effectively develop and assess qualitative and quantitative daylighting strategies; and to develop a personal daylighting design theory, process, and practice.

ARCH 3271. BDA: Watercolor Sketching: Exploring Iconic Sites. (2 cr. ; A-F only; Periodic Fall & Spring)
Students will develop skills in representation and visualization using watercolor as a medium for examining architecture as material, structure and attitude. Students will explore creative methods in representation through a process of working en plein air. A new site of architectural significance will be visited each week. The goal of this design workshop is for students to discover and capture a sense of space, material and design in a personal manner, developing skills in representation as well as in design process. The way of working en plein air reflects a tradition in architecture of studying precedents in situ as well as an attitude captured by Frederick Frank in The Zen of Seeing, namely: To stop rushing around, to sit quietly on the grass, to switch off the world and come back to the earth, to allow the eye to see a willow, a bush, a cloud, a leaf, is an unforgettable experience.

ARCH 3281. Undergraduate Architecture Studio I. (; 6 cr. ; A-F only; Every Fall)
Introduction to architectural design in relation to site. prereq: BS Arch major

ARCH 3282. Undergraduate Architecture Studio II. (; 6 cr. ; A-F only; Every Spring)
Introduction to architectural design in relation to program. prereq: [3281 or 4281], BS Arch major

ARCH 3291. Extensive Applications Design Workshop. (3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
BDA design core workshops develop your ability to critically approach a broad range of conditions through the lens of architecture. This course focuses on the critical inquiry of latent or intangible attributes such as architecture's experiential, social, cultural, political, ethical, and poetic dimensions. Students in this course will engage architecture from the point of view of ephemeral conditions, theoretical understandings and operations, spatializing of data, and/or architectural inquiry applied to complex conditions or translations. The course offers a structure for moderately directed learning (including guided peer review), emphasizes iteration and process, and offers an opportunity to discover where and how your own interests align with broader opportunities as an emerging designer in architecture and/or other allied disciplines and design fields.

ARCH 3301. Drawing for Design in Architecture. (3 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to practical/conceptual function of drawing in architecture. prereq: [1301 or LA 1301 or 2301], [Arch or BED major]

ARCH 3312. Drawing Infrastructure. (; 4 cr. ; A-F only; Periodic Spring)

This course will explore both historic and modern infrastructure as cultural and engineering constructs through representation as a form of critical research. The course is location and content and focus will change as location of study program changes. The course will be structured around study trips, readings, on-site lectures and will be supplemented by the participation of several guest speakers.

ARCH 3351. AutoCAD I. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Concepts, tools, and techniques of computer-aided drawing with current AutoCAD Release. Producing dimensioned/annotated drawings for plotting. 3-D drawing capabilities. Use of dimension variables, attributes, blocks, symbols. prereq: Arch major or BED major or instr consent

ARCH 3391. Design and Representation with BIM. (3 cr. ; A-F or Audit; Every Fall)
In this course, students will be introduced to the concept of Building Information Modeling (BIM) through the use of Autodesk Revit, one, one of the BIM software tools most commonly used in architectural practice today. Students will engage in a series of design exercises that will require both learning and applying Revit in the context of real world architectural scenarios. In addition to learning Autodesk Revit as a design tool, we will examine the use of BIM technology within the architectural industry through a series of case study examples. Also, presenters will share firsthand accounts of CAD and BIM Software being implemented in architectural practice.

ARCH 3411V. Architectural History to 1750. (GP,WI,HIS; 3 cr. ; A-F only; Every Fall)
History of architecture/city planning from antiquity to 1750, as illustrated by major monuments from western/non-western cultures. prereq: Soph or above

ARCH 3411W. Architectural History to 1750. (GP,WI,HIS; 3 cr. ; A-F or Audit; Every Fall)
Built environment as a tool to study the human past from ancient times to 1750. Major trends of style and form and the relationships, practices, beliefs that have shaped human behavior. prereq: Soph or above

ARCH 3412H. Honors: Architectural History Since 1750. (GP,HIS; 3 cr. ; A-F or Audit; Every Spring)
Built environment from the Enlightenment to the present in a broad social, cultural, and political context. Major architectural movements and associated forms/designs. Ideas/philosophies that have emerged over time. Lecture, textbooks, discussion, writing, drawing, looking, and researching. prereq: Soph, honors

ARCH 3412W. Architectural History Since 1750. (GP,WI,HIS; 3 cr. ; A-F or Audit; Every Spring)
Examples of the built environment from the Enlightenment to the present are studied within a broad social, cultural, and political context. Major architectural movements and their associated forms and designs. prereq: Soph or above

ARCH 3451W. Theory in Design Use. (WI; 3 cr. ; A-F only; Every Spring)
Introduction to contemporary architectural criticism. Ideas put forth by this criticism in three papers. Relating these ideas to student's own design work. prereq: [1701, 3311, 3312, [one BS design studio or two BDA workshops]

ARCH 3511. Material Transformations: Technology and Change in the Built Environment. (TS; 3 cr. ; A-F only; Periodic Fall)
Surveys development of significant architectural material technologies/their relationships to society/natural environment.

ARCH 3611. Design in the Digital Age. (; 3 cr. ; A-F or Audit; Every Spring)
Introduction to design, design process. Developing/understanding ways of seeing, thinking, and acting as a designer. Changes in design being wrought by digital technology. Team design project.

ARCH 3711V. Honors: Environmental Design and the Sociocultural Context. (CIV,WI,SOCS; 3 cr. ; A-F only; Every Fall)
Designed environment as cultural medium and as product of a sociocultural process and expression of values, ideas, and behavioral patterns. Design/construction as complex political process. prereq: Honors, [soph or above]

ARCH 3711W. Environmental Design and the Sociocultural Context. (CIV,WI,SOCS; 3 cr. ; A-F only; Every Fall)
Designed environment as cultural medium/ product of sociocultural process/expression of values, ideas, behavioral patterns. Design/ construction as complex political process. prereq: Soph or above

ARCH 3722. The City in Visual Culture. (AH,GP; 3 cr. ; A-F only; Every Spring)
Grounded by the rich, complex and diverse architectural and urban contexts of the city, this course will examine how the spaces of the city are created, experienced and represented through its visual culture. The class will investigate how the physical landscape of the city has changed over time through all its historical incarnations. The course is location and content and focus will change as location of study program changes. The course will be structured around weekly seminars, readings, on-site lectures and will be supplemented by the participation of several guest speakers.

ARCH 3756. Public Interest Design: Principles and Practices. (3 cr. ; A-F or Audit; Every Spring)
As the allied fields of design evolve in response to an increasing number of global challenges - inequity, social and political turmoil, disruptive climate-change, accelerating population growth - the question of how designers will address the needs of the most vulnerable among us is fundamental. Public Interest Design (PID), an emerging area of specialization within the design professions, specifically considers the concerns of the vast majority of the world? s inhabitants who are historically under-resourced and ill-equipped to respond to the ? Grand Challenges? facing humankind. With this mind, this introductory survey course has two aims: First, to critically examine the range of environmental, economic, social, and ethical issues that underpins work with under-resourced domestic and international communities ? including how these concerns can be collectively addressed to become more resilient; and second, to investigate organizational models that seek to broaden the traditional scope of the allied design fields as disciplines and professions by advocating a humanitarian basis for practice.

ARCH 3993. Directed Study. (; 1-3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

ARCH 4150. Topics in Architecture. (; 1-4 cr. [max 24 cr.] ; A-F or Audit; Periodic Fall & Spring)
Design, technology, history, theory, representation, or urbanism. prereq: Arch major or instr consent

ARCH 4150W. Topics in Architecture (Writing Intensive). (WI; 1-4 cr. [max 24 cr.] ; A-F only; Periodic Fall & Spring)
Selected topics in Architecture that meet Writing Intensive requirements.

ARCH 4194H. Thesis/Capstone Project. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Individualizes honors experience by connecting aspects of major program with special academic interests. prereq: Arch major, sr, honors

ARCH 4231. Advanced Intensive Applications Design Workshop. (3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
BDA design core workshops develop your ability to critically approach a broad range of conditions through the lens of architecture. This course will focus on the critical inquiry of tangible architectural attributes such as material (assembly), site (context), or program (need). This workshop foregrounds the analysis of more measurable, physical and specific conditions, and will favor local project sites and/or precedent projects. Appropriate to an advanced design workshop, this course provides a structure for more guided, self-directed learning in service of iteratively advancing a design project through the lens of architecture.

ARCH 4283. Undergraduate Architecture Studio III. (; 6 cr. ; A-F only; Every Fall)
Introduction to architectural design in relation to materials, construction methods. prereq: [3282 or 4282], B.S. Arch major

ARCH 4284. Undergraduate Architecture Studio IV. (; 6 cr. ; A-F only; Every Spring)
Topical design studio. prereq: 4283, BS Arch major

ARCH 4291. Advanced Extensive Applications Design Workshop. (3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
BDA design core workshops develop your ability to critically approach a broad range of conditions through the lens of architecture. This course focuses on the critical inquiry of latent or intangible attributes such as architecture's

experiential, social, cultural, political, ethical, and poetic dimensions. Students in this course will engage architecture from the point of view of ephemeral conditions, theoretical understandings and operations, spatializing of data, and/or architectural inquiry applied to complex conditions or translations. Appropriate to an advanced design workshop, this course provides a structure for more guided, self-directed learning in service of iteratively advancing a design project through the lens of architecture.

ARCH 4321. Architecture in Watercolor. (3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Watercolor as tool in design process. Foundation principles, techniques, medium, tools, materials. Color relationships, mixing, composition, applications to design. prereq: 2301

ARCH 4325. Architectural Photography: Imaging by Design. (4 cr. ; A-F only; Periodic Fall & Spring)
Principals of architectural photography as language of design through lectures, demonstrations, critical discussions. Ongoing photographic study under framework of conceptual themes. compositional forms, graphic styling, use of natural/artificial light, technical issues. prereq: BDA or BS major or Landscape Design and Planning major or instr consent

ARCH 4341. Architecture Portfolio Design. (3 cr. ; A-F only; Every Fall & Spring)
An introduction to design principles as they relate to the architecture portfolio. Students extend design thinking and visual communication skills in architecture into broader, life-long applications within the architecture profession by designing a portfolio that represents in a meaningful way a range of architecture and/or other coursework.

ARCH 4361. 3-D Computer Architectural Modeling and Design. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Use of 3D computer modeling for representation in abstract/realistic ways. Creation/arrangement of objects. Setting up lighting. Developing surface materials. Creating still renderings/animations. Ways computer visualization can be used for design exploration, feedback during idea development, and realistic representation of designs. prereq: 3351, Arch major

ARCH 4382. Computer-Aided Architectural Design. (; 3 cr. ; A-F or Audit; Every Spring)
Computer-aided tools as used in design. Practice in 2-/3-D CAD, image manipulation. Advanced multimedia visualization techniques, including solid modeling, photo realistic imaging, animation, and video editing/recording.

ARCH 4410. Topics in Architectural History. (; 1-4 cr. [max 24 cr.] ; A-F only; Periodic Fall & Spring)
Selected topics in Architectural History

ARCH 4421W. Architecture and Interpretation: The Cave and the Light. (WI; 3 cr. ; A-F or Audit; Periodic Spring)
Historical/hermeneutical investigation of iconography of grotto. Intertwined themes of descent into earth and ascent to light, from earliest strata of human culture to present day. prereq: [3411, 3412] or instr consent

ARCH 4423. Gothic Architecture. (; 3 cr. ; A-F or Audit; Periodic Fall)
History of architecture and urban design in Western Europe, from 1150 to 1400. prereq: 3411 or instr consent

ARCH 4424. Renaissance Architecture. (; 3 cr. ; A-F or Audit; Periodic Fall)
History of architecture and urban design in Italy, from 1400 to 1600. Emphasizes major figures (Brunelleschi, Alberti, Bramante, Palladio) and evolution of major cities (Rome, Florence, Venice). prereq: 3411 or instr consent

ARCH 4425W. Baroque Architecture. (WI; 3 cr. ; A-F or Audit; Periodic Fall)
Architecture and urban design in Italy, from 1600 to 1750. Emphasizes major figures (Bernini, Borromini, Cortona, Guarini) and evolution of major cities (Rome, Turin). prereq: 3411 or instr consent

ARCH 4428. History and Culture of European Cities. (GP,HIS; 3 cr. ; A-F only; Every Spring)
This is a history course aimed at investigating the rich urban, landscape and architectural legacy of European cities, tracing their complex histories through the development of city morphology, and ceremonial and quotidian spaces. The course is location and content and focus will change as location of study program changes. Lectures are in class and also includes several field trips to historic sites and landscapes.

ARCH 4431. Eighteenth-Century Architecture and the Enlightenment. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Architecture, urban planning, and garden design in Europe and America, 1650 to 1850.

ARCH 4432. Modern Architecture. (; 3 cr. ; A-F or Audit; Fall Odd Year)
Architecture and urban design in Europe and the United States from early 19th century to World War II. prereq: 3412 or instr consent

ARCH 4434. Contemporary Architecture. (; 3 cr. ; A-F or Audit; Fall Even Year)
Developments, theories, movements, and trends in architecture and urban design from World War II to present. prereq: 3412 or instr consent

ARCH 4435. History of American Architecture. (3 cr. ; A-F or Audit; Periodic Fall)
Through lectures, readings, discussion, and research, we will analyze buildings and spaces?architect designed and ?vernacular?? in the context of social, political, economic, technological, and ecological change. As we address these issues, we will examine the ways design and daily life, performed locally, interacted with national and global systems and flows; and the role the built environment has played in advancing structures and concepts of class, gender, race, ethnicity, and power. Students will gain a broad familiarity with the history of American buildings and landscapes, develop critical frameworks for analysis, and enhance their understanding of the environments they interact with every day?as designers, citizens, consumers, and professionals.

ARCH 4451. Contemporary Architectural Thinking. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course examines major architectural theories and debates which have informed, catalyzed, or destabilized the discourse of architecture in the past seven decades. Focusing on selected key texts, ideologies, and figures, the course considers the changing role of architectural theory?as a vehicle of thought, a guide for practice, a catalyst for design, and a platform for debate. Topics shows formal or theoretical resonances in the problematics and poetics of architectural productions apropos of the technofantasist neo-avant-gardism, the post-structural semiosis, the postmodern consumerism, conceptual architecture, pop architecture, hippie counterculture, etc.

ARCH 4511. Materials and Methods I. (; 3 cr. ; A-F or Audit; Every Fall)
Building materials, assemblies, construction operations shaping building designs. Material properties for designing/detailing building systems, elements, components. Applications. Modeling, hands-on building experiences. prereq: BS Arch major or BDA major jr/sr

ARCH 4521. Environmental Technology I. (; 3 cr. ; A-F or Audit; Every Fall)
Issues related to environmental quality/design. Climate response. Heating, cooling, lighting design. Indoor air quality. prereq: BS Arch major

ARCH 4552. Integrated Design Processes. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Wood/steel building design topics. Emphasizes whole building design and individual structural elements. Conceptual design strategies. Planning/design phases. Criteria for selection of building systems. Principles of wood/steel structural systems. Basic building code requirements. Individual/group design/research projects.

ARCH 4561. Architecture and Ecology. (ENV; 3 cr. ; A-F or Audit; Every Spring)
Introduction to theories/practices of ecological approaches to architectural design. Ecological context, implications/opportunities of architecture. Historical/theoretical framework for ecological design thinking. Issues studied at various scales: site/community, building, component.

ARCH 4571. Architectural Structures I. (; 3 cr. ; A-F or Audit; Every Fall)
Structural mechanics, graphic/quantitative analysis. Loads, materiality, strength, equilibrium, stability, serviceability, reliability. External/internal forces. Shear/moment diagrams/calculations. Structural behavior of building systems. Design using wood/steel members. prereq: BS Arch major

ARCH 4671. Historic Preservation. (; 3 cr. ; A-F or Audit; Every Fall)
Philosophy, theory, origins of historic preservation. Historic archaeology, research, descriptive analysis, documentation. Government's role, standards/guidelines, building codes, neighborhood preservation, advocacy. Using primary/secondary resources. Controversial aspects. prereq: Jr or sr or instr consent

ARCH 4672. Historic Building Conservation. (; 3 cr. ; A-F or Audit; Every Fall)
Historic building materials, systems, methods of conservation. Structural systems, building repair/pathology. Introducing new environmental systems. Conserving interiors. Research on materials/techniques, using primary/secondary resources. Documenting with photography/measured drawings. prereq: 4671 or concurrent enrollment in 4671 or instr consent

ARCH 4674. World Heritage Conservation. (; 3 cr. ; A-F only; Periodic Fall)
Design/planning options for conservation of historic buildings/cultural heritage sites. Case studies link current practices, methods/ solutions with expert preservationists, site conservationists, local communities in development/design of conservation proposals. prereq: Jr or sr or instr consent

ARCH 4701W. Introduction to Urban Form and Theory. (WI; 3 cr. ; A-F only; Every Spring)
Urban form, related issues of design/theory/ culture. Thematic history of cities. Lectures, discussions, assignments. prereq: [3411, 3412] or instr consent

ARCH 5001. Architectural Design Studies: Representation & Design. (1 cr. ; A-F only; Every Summer)
During this six week, summer intensive course, students will focus on basic issues of visual thinking and conceptual representation in architecture. This sequence of complementary exercises introduces issues and ways of working intended to complement educational backgrounds from other, non-architectural, disciplines. To do that we have designed the exercises to juxtapose different ways of perceiving and understanding constructed environments. While exploring these architectural ways of thinking, the exercises will also help to acknowledge preconceptions that may hinder one's ability to explore conceptual decisions.

ARCH 5101. Architectural Design Studies. (; 7 cr. ; S-N only; Every Summer)
Principles/methods architecture design. Theories, history, technologies, media, and processes as foundation for critical thinking. Analytic modeling, visual thinking. prereq: 3+ track for MArch

ARCH 5110. Architecture as Catalyst. (1 cr. [max 3 cr.] ; S-N only; Every Spring)
Topical workshops on design methods, theories, or emerging practices. prereq: M.Arch

ARCH 5207. Venice Design Workshop. (; 4 cr. ; A-F only; Every Spring)
Design interventions with special concerns for urban landscapes, heritage conservation, and sustainable development. Jointly conducted with a graduate landscape architecture design studio. Design techniques for site plans/ masterplans. Final project. prereq: M.Arch or instr consent

ARCH 5212. Undergraduate Architecture Studio 05: Advanced Design. (6 cr. ; A-F only; Every Fall)
Advanced design studio to engage students in range of critical subjects to be determined by respective instructors. Intended to challenge students with independent/experimental approach to design that builds on prior knowledge, develop working methodologies/ design ethics. prereq: C- or better in 3281, 3282, 4283, 4284

ARCH 5241. Principles of Design Programming. (; 3-4 cr. ; A-F or Audit; Periodic Spring)
Architectural programming. Client/user needs. Equipment, space, activity analysis. Site selection, precedent analysis. Analysis of standards/regulations. Technology and materials. Hypothesis formulation/ evaluation. Conceptual development, research, representation, interpretation. prereq: [8251, [M.Arch or MS Arch] major] or instr consent

ARCH 5250. Advanced Topics in Design. (; 1-6 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Advanced topics in architectural design.

ARCH 5301. Conceptual Drawing. (; 3 cr. ; A-F only; Every Spring)
Drawing as way of analyzing, exploring, and generating design ideas. Projection systems, diagramming, mapping. Different modes of visual perception. Nonverbal structures. prereq: MArch major or instr consent

ARCH 5313. Visual Communication Techniques in Architecture. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Delineation, presentation, and design techniques. Various visual media and methods of investigation. prereq: M Arch major or instr consent

ARCH 5321. Architecture in Watercolor. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Watercolor as a tool in design process. Foundation principles, techniques, medium, tools, materials. Color relationships, mixing, composition, applications to design. prereq: M Arch grad student or instr consent

ARCH 5350. Topics in Architectural Representation. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Selected topics in architectural representation.

ARCH 5361. 3-D Computer Architectural Modeling and Design. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Use of 3D computer modeling for representation in abstract/realistic ways. Computer modeling software. Creation/ arrangement of objects, setting up lighting, developing surface materials, creating still renderings/animations. Ways in which computer visualization can be used for design exploration, for feedback during development of ideas, and for realistic representation of fully formed designs. prereq: M Arch major

ARCH 5372. Computer Methods II. (; 1 cr. ; S-N or Audit; Every Spring)
Current techniques, computer programs, and their application to architectural computing and design. prereq: 5371, concurrent registration is required (or allowed) in 8252 and M Arch major or instr consent

ARCH 5381. Introduction to Computer Aided Architectural Design. (; 3 cr. ; A-F or Audit; Every Fall)
2-D drawing, 3-D modeling/animation, printing, plotting. Electronic networking/communications, database management, spreadsheet analysis, land-use analysis, project management. prereq: Arch or BED or M Arch or grad student in LA or instr consent

ARCH 5382. Computer Aided Architectural Design. (; 3 cr. ; A-F or Audit; Every Spring)
2-D/3-D CAD, image manipulation. Advanced multimedia visualization techniques for design, including solid modeling, photo-/realistic imaging, animation, video-editing/recording.

ARCH 5391. Design and Representation with BIM. (3 cr. ; A-F or Audit; Every Fall)
In this course, students will be introduced to the concept of Building Information Modeling (BIM) through the use of Autodesk Revit, one, one of the BIM software tools most commonly used in architectural practice today. Students will engage in a series of design exercises that will require both learning and applying Revit in the context of real world architectural scenarios. In addition to learning Autodesk Revit as a design tool, we will examine the use of BIM technology within the architectural industry through a series of case study examples. Also, presenters will share firsthand accounts of CAD and BIM Software being implemented in architectural practice.

ARCH 5392. Digital Documentation: Facades. (3 cr. ; A-F or Audit; Every Spring)
This course explores two aspects of contemporary architectural practice that are bound up in a constantly evolving relationship: Facades and BIM. Over the course of the semester, students will study the anatomy of contemporary enclosure systems and understand the requirements that shape them. We will look at systems that are complex, layered and multi-functional, and develop an understanding of contemporary enclosure design relative to historical precedents.

ARCH 5410. Topics in Architectural History. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Fall & Spring)
Advanced study in architectural history. Readings, research, seminar reports.

ARCH 5411. Principles of Design Theory. (; 3 cr. ; A-F or Audit; Every Spring)
Principles of design and their instrumentation. How and why architecture theory is generated. Types and significance of formal analysis. Theoretical positions and modes of criticism. prereq: M Arch major or instr consent

ARCH 5412. Architecture: A Global and Cultural History. (3 cr. ; A-F only; Every Fall)
This course examines the history of architecture from a global perspective, addressing a variety of traditions and geographical locations, and following their interconnections and exchanges.

ARCH 5413. Modern and Contemporary Global Architecture. (3 cr. ; A-F only; Every Spring)
This course is a global history of modern and contemporary architecture, tailored to graduate students in the M.Arch. program. The course examines the architectural production of the 20th and 21st centuries through the focused study of buildings, urban plans, unbuilt designs, manifestos, and other visual and textual documents. Students will be called upon to reflect on issues of design, planning, programming, technology, and representation, connecting this course to their architectural training and future professional practice.
At the same time, the course will offer a critical and multidisciplinary perspective, presenting architecture in the context of culture, politics, economics, ideology, and other historical developments. The premise of this course is the fundamental role of history for contemporary and future architectural practice. The course assignments, readings, and activities aim to spur a productive dialogue between critical reflection and historical knowledge with an eye towards creative action.

ARCH 5421. Architecture and Interpertation: The Cave and the Light. (; 3 cr. ; A-F only; Periodic Spring)
Historical/hermeneutical investigation of iconography of grotto. Intertwined themes of descent into earth and ascent to light, from earliest strata of human culture to present day. prereq: [3411, 3412] or instr consent

ARCH 5423. Gothic Architecture. (; 3 cr. ; A-F or Audit; Spring Odd Year)
History of architecture and urban design in Western Europe, from 1150 to 1400. prereq: MS Arch or M Arch major or instr consent

ARCH 5424. Renaissance Architecture. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
History of architecture and urban design in Italy, from 1400 to 1600. Emphasizes major figures (Brunelleschi, Alberti, Bramante, Palladio) and evolution of major cities (Rome, Florence, Venice). prereq: MS Arch or M Arch major or instr consent

ARCH 5425. Baroque Architecture. (; 3 cr. ; A-F or Audit; Fall Odd Year)
Architecture and urban design in Italy, from 1600 to 1750. Emphasizes major figures (Bernini, Borromini, Cortona, Guarini) and evolution of major cities (Rome, Turin). prereq: MS Arch or M Arch major or instr consent

ARCH 5431. Eighteenth-Century Architecture and the Enlightenment. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Architecture, urban planning, and garden design in Europe and America from 1650 to 1850.

ARCH 5432. Modern Architecture. (; 3 cr. ; A-F or Audit; Periodic Fall)
Architecture and urban design in Europe and the United States, from early 19th century to World War II. prereq: MS Arch or M Arch major or instr consent

ARCH 5434. Contemporary Architecture. (; 3 cr. ; A-F or Audit; Every Fall)
Developments, theories, movements, and trends in architecture and urban design, from World War II to present. prereq: MS Arch or M Arch major or instr consent

ARCH 5435. History of American Architecture. (3 cr. ; A-F or Audit; Periodic Fall)
Through lectures, readings, discussion, and research, we will analyze buildings and spaces?architect designed and ?vernacular?? in the context of social, political, economic, technological, and ecological change. As we address these issues, we will examine the ways design and daily life, performed locally, interacted with national and global systems and flows; and the role the built environment has played in advancing structures and concepts of class, gender, race, ethnicity, and power. Students will gain a broad familiarity with the history of American buildings and landscapes, develop critical frameworks for analysis, and enhance their understanding of the environments they interact with every day?as designers, citizens, consumers, and professionals.

ARCH 5441. Minnesota: Architecture and Landscapes. (; 3 cr. ; A-F only; Every Spring)
History of major architectural monuments, urban phenomena, and landscape forms of Minnesota. Interrelationships between architecture, geography, and people. prereq: [3411, 3412] recommended

ARCH 5446. Architecture Since World War II: Postwar Experimentation: Aesthetics and Politics of Architecture. (; 3 cr. ; A-F only; Every Fall)
Eight-week seminar. Avant-garde architectural responses to postwar consciousness of social issues/meaning. How tenets of western avant-gardism were transformed by regional constraints when introduced to post-independent agendas of non-western world. prereq: M Arch major

ARCH 5450. Topics in Architectural Theory. (; 1-3 cr. [max 9 cr.] ; A-F or Audit; Periodic Fall & Spring)
Selected topics in architectural theory and criticism.

ARCH 5451. Architecture: Defining the Discipline. (; 4 cr. ; A-F only; Periodic Fall & Spring)
Paradigms through which architecture has defined itself. Implications for its practice, product, and architecture in general. Lecture, discussion, design exercises. prereq: M Arch major

ARCH 5452. Architecture: Design, Form, Order, and Meaning. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Architecture and the issue of meaning. Explores fundamental and constituent elements of architectural form and order; their inherent tectonic, phenomenal, experiential, and symbolic characteristics; their potential and implications for the creation and structure of meaningful human places. prereq: M Arch major or instr consent

ARCH 5461. North American Indian Architecture. (; 3 cr. ; Student Option; Every Spring)
Historic/contemporary principles/theories of North American Indian architecture. Culture, technology, environment, art, and craft of North American Indians in their settlements/ architecture. prereq: M Arch major or instr consent

ARCH 5462. Venice: A Port City. (; 3 cr. ; A-F only; Every Spring)
Historical understanding of Venice and its lagoon, the rise and decline of Venice as a maritime empire as well as a port city of global trades, and environmental issues of heritage conservation. Seminars/field trips highlighting architectural and artistic achievements of Venice. prereq: M.Arch or MLA or instr consent

ARCH 5515. Technology One: Building Materials and Construction Systems. (; 3 cr. ; A-F only; Every Fall)
Building materials (concrete, masonry, steel, timber, glass). Building systems (structure, envelope, circulation, HVAC, plumbing). Integration of systems. Building construction processes/terminology. prereq: M Arch student

ARCH 5516. Technology Two: Luminous and Thermal Design. (; 6 cr. ; A-F only; Every Spring)
Concepts/principles of daylighting, thermal, energy, and systems integration. Architectural/ technological implications of lighting and thermal design. Ecological thinking in support of sustainable design decision making. prereq: M Arch

ARCH 5517. Technology Three: Structural Systems. (; 3 cr. ; A-F only; Every Fall)
Structural behavior in withstanding gravity and lateral forces. Evolution, range, and applications of structural systems. Structural analysis. Graphical methods, site visits, analog/ digital modeling. Case studies, problems. prereq: M Arch student

ARCH 5518. Environmental Technology: Integrative Ecological Design for Responsive Architecture. (3 cr. ; A-F only; Every Fall)
This course introduces the ecological design concepts and principles of daylighting, thermal, energy, and building systems integration. The course will provide students with an understanding of the primary architectural and technological implications of lighting and thermal to inform design and ecological thinking and to support sustainable design decision-making.

ARCH 5521. Material Investigation: Concrete. (; 4 cr. ; A-F only; Every Spring)
Design projects identify common problems/ improvements, investigate alternatives, and develop solutions where concrete is primary building material. prereq: MArch or MS

ARCH 5523. Material Investigation: Steel and Glass. (; 4 cr. ; A-F only; Every Spring)

Design projects identify common problems and improvements, investigate alternatives and develop solutions where steel and glass are the primary building materials. prereq: Grad student

ARCH 5527. Material Investigations: Stone and Water. (; 4 cr. ; A-F only; Every Spring)
Design projects identify common problems/ improvements, investigate alternatives, and develop solutions where wood is primary building material. prereq: M.Arch or M.S.

ARCH 5539. Daylighting and Architecture Design. (; 3 cr. [max 4 cr.] ; A-F only; Every Spring)
This 15-week seminar will explore approaches to daylighting and architectural design that weave together diverse layers of ecological, physiological, and psychological issues to enhance our understanding and relationship of light in place and time. We will explore how the formal, aesthetic, atmospheric, and experiential aspects of daylighting also support and foster more sustainable and regenerative approaches to architectural design. The goal of the seminar is to familiarize students with daylighting from an ecological perspective in order to use both creatively in the design process.

ARCH 5541. Material Strategies. (; 3 cr. ; A-F only; Every Fall)
Emergent materials in advanced building design; strategies for material approaches relevant to global resource flows, technological trajectories, and sociocultural effects. Research projects based on evaluative tools and case studies. prereq: M Arch or Arch MS major

ARCH 5550. Topics in Technology. (; 1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Selected topics in architecture technology, e.g., construction, environmental management, energy performance, lighting, materials.

ARCH 5561. Tech 1, Structures for Building. (3 cr. ; A-F or Audit; Every Fall)
Role of structure in architectural design. Common systems found throughout history. Review systems to identify parameters that influence structural decisions. prereq: M Arch major or instr consent

ARCH 5562. Tech 2, Intro to Building Technology. (3 cr. ; A-F only; Every Fall)
Origin/development of architectural idea. Designs as direct means of representing our underlying intentions. prereq: M.Arch or instr consent

ARCH 5563. Tech 3: Advanced Building Technology Integrated Building Systems. (3 cr. ; A-F only; Every Fall)
Logic of integrating building systems. Improving understanding of/thinking critically about integration principles, theories, practice, application. Identifying/working through problems the project architect must address. prereq: M.Arch or instr consent

ARCH 5564. Tech 4: Building Structural Systems. (3 cr. ; A-F only; Every Fall)
Main concepts related to building structures. Basic knowledge of flow of forces. Review of rules for sizing structures. Calculations to understand systems behavior. Knowledge/tools to design buildings considering structure within design process. prereq: M.Arch or instr consent

ARCH 5609. Development and Implementation of Research. (3 cr. ; A-F only; Every Fall)
Bridge gaps among architectural research, design, practice. Forum for students to independently develop research topics/ implement research methods related to architectural scholarship/practice, aided by classmates, instructor, guest lecturers. prereq: instr consent

ARCH 5611. Design in the Digital Age. (; 3 cr. ; A-F or Audit; Every Spring)
Introduction to design, design process. Developing/understanding ways of seeing, thinking, and acting as a designer. Changes in design being wrought by digital technology. Team design project. prereq: Grad student or upper level undergrad student

ARCH 5621. Professional Practice in Architecture. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Legal, ethical, business, and practical requirements of architectural practice. Contemporary and historical models of contract formation, business principles, accounting, project management, design services, and marketing. prereq: M Arch major or instr consent

ARCH 5630. Practicum: Advanced Issues in Practice. (3 cr. [max 6 cr.] ; Suppressed Penalty Grades; Every Fall & Spring)
Advanced architectural practice topics not normally covered in curricula are examined/ evaluated as foundation for licensure/ARE 4.0 testing processes. prereq: M.S. Architecture or M.Arch

ARCH 5650. Topics in Architectural Practice. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics in architectural practice, methods of design production, marketing, operation, and relationships among clients, architecture, and society. prereq: 5621, Arch major or 5621, M Arch major or instr consent

ARCH 5651. Building Stories. (; 3 cr. [max 12 cr.] ; A-F only; Every Spring)
Professional practice education by means of case study analysis.

ARCH 5670. Topics in Historic Preservation. (; 1-3 cr. [max 12 cr.] ; Student Option; Periodic Fall)
Selected topics in the theory, philosophy, research, and methods of architectural historic preservation.

ARCH 5671. Historic Preservation. (3 cr. ; Student Option; Every Fall)
Philosophy, theory, origins of historic preservation. Historic archaeology/research, descriptive analysis, documentation of historic buildings. Government's role in historic preservation, preservation standards/ guidelines, preservation/building codes, preservation advocacy.

ARCH 5672. Historic Building Conservation. (; 3 cr. ; Student Option; Every Spring)
Historic building materials, systems, and methods of conservation. Discussion of structural systems, building repair and pathology, introduction of new environmental systems in historic buildings, and conservation of historic interiors. Research on historic building materials and techniques using primary and secondary resources and on documentation of a specific historic site through large-format photography and measured drawings. prereq: 3412, 5671 or instr consent

ARCH 5673. Historic Property Research and Documentation. (3 cr. ; Student Option; Every Spring)
Philosophy, theory, methods of historic building research. Descriptive analysis of buildings, building documentation, historical archaeology, architectural taxonomy. prereq: [3412, 3641, 4671, 5671, 4672 or 5672] or instr consent

ARCH 5674. World Heritage Conservation. (; 3 cr. ; A-F only; Periodic Fall)
Investigations of World Heritage conservation and nomination for the preservation of historic buildings and sites and their management for public use. Case studies link current practices, methods, and solutions with expert preservationists, site conservationists and local communities in the development and design of preservation strategies. prereq: MS in Arch-HP concentration or M.ARCH or MLA or instr consent

ARCH 5676. Economics of Heritage Preservation. (; 3 cr. ; A-F only; Periodic Fall)
Theory and practice of heritage preservation-based community redevelopment/economics. Financial aspects of real estate development. Case studies of recent historic rehabilitation projects throughout Minnesota. Financial feasibility and compliance with design guidelines/regulatory aspects. Financial incentives in other states/how new policies in Minnesota might positively influence preservation activity.

ARCH 5677. Preservation of the Vernacular Built Environment and Cultural Landscape. (3 cr. ; A-F only; Periodic Spring)
Theoretical, methodological, practical implications of preserving vernacular environment such as commercial blocks, strips/buildings, warehouses/sheds, wharves/ piers, abandoned streetcar tracks/railroad spurs. prereq: Grad student, open to upper level (junior/senior) undergraduates with instr consent. Honors student encouraged.

ARCH 5678. Preservation & Sustainability. (3 cr. ; A-F or Audit; Every Spring)
Topics covered include identification of historic properties, consideration of constraints on modification, examination of potential energy-saving treatments, consideration of the full range of options for ?greening? buildings and neighborhood, and discussion of resolution of conflicts between the two.

ARCH 5686. Research Practices Final Project: Research into Practice. (4 cr. ; A-F only; Every Fall)
The course is the first of a three-??course final project sequence required as the capstone experience for MS-??RP students. The

course provides a forum for understanding the current state of research in the design and building industry and its trajectories and trends. Student projects will apply this knowledge to a regionally based commercial or non-?????profit practices in the building industry, assessing the firm???s research capacity, mapping its potential in context of innovative precedents and suggesting future growth. prereq: MS-RP student

ARCH 5687. Research Practices Final Project: Practice into Research. (4 cr. ; S-N only; Every Fall)
Course is the second of a three-??course final project sequence required as the capstone experience for MS-??RP students. Building upon the previous semester understanding the state of research in the building industry, this course develops a single case study project in comparative context of contemporary practice. The work of individual students adds to a collective knowledge base on project best practices and development of industry-????? wide metrics and standards. Course meets concurrently with ARCH 5688 Representation of Case Studies. prereq: Arch 5686

ARCH 5688. Research Practices Final Project: Representation of Case Studies. (1 cr. ; A-F only; Every Fall)
The course is the third of a three-??course final project sequence required as the capstone experience for MS-??RP students. This course meets concurrently to ARCH 5687 Practice into Research. Information graphics are essential to understanding and explaining critical issues in a case study. The format of information can be designed to emphasize comparisons between projects or to highlight unique characteristics of individual projects. This course will explore a variety of strategies commonly used in case study documentation and ask the student to apply one method to present the case developed in ARCH 5687. prereq: Arch 5686

ARCH 5689. Advanced Inclusive Professional Practice. (3 cr. ; A-F only; Every Fall)
Advanced inclusive professional practice class focuses on new and emerging issues in architectural practice including: Lean design, research practices, collaborative intercultural competence. Student projects include creation of interactive material and diagrams.

ARCH 5711. Theory and Principles of Urban Design. (; 3 cr. ; A-F or Audit; Every Spring)
Seminar. Debate on dominant theories/ paradigms informing city design from renaissance to 21th century. Critical issues central to current debates. prereq: M Arch major or LA grad major or grad student or instr consent

ARCH 5721. Case Studies in Urban Design. (; 3 cr. ; A-F or Audit; Every Spring)
Reading seminar. Evolution of contemporary city. Dynamics that created contemporary urban spatial patterns. Planning/design theories that have guided public interventions in built environment. Thematic texts, classroom discussions. prereq: Grad student or instr consent

ARCH 5731. Territorial City. (; 3 cr. ; A-F only; Every Fall)
Seminar. Students research, define, and test conditions within which the territory and contemporary city coexist. Site for research is Twin Cities metropolitan area. Readings, discussions, field trips, collaborative development of urban proposals.

ARCH 5750. Topics in Urban Design. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Special topics in theory/practice of urban design.

ARCH 5756. Public Interest Design: Principles and Practices. (3 cr. ; A-F or Audit; Every Spring)
As the allied fields of design evolve in response to an increasing number of global challenges?inequity, social and political turmoil, disruptive climate-change, accelerating population growth?the question of how designers will address the needs of the most vulnerable among us is fundamental. Public Interest Design (PID), an emerging area of specialization within the design professions, specifically considers the concerns of the vast majority of the world's inhabitants who are historically under-resourced and ill-equipped to respond to the "Grand Challenges" facing humankind. With this mind, this introductory survey course has two aims: First, to critically examine the range of environmental, economic, social, and ethical issues that underpins work with under-resourced domestic and international communities?including how these concerns can be collectively addressed to become more resilient; and second, to investigate organizational models that seek to broaden the traditional scope of the allied design fields as disciplines and professions by advocating a humanitarian basis for practice.

ARCH 5993. Directed Study. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Guided individual reading or study. prereq: instr consent

Art (ARTS)

ARTS 1001. Introduction to Contemporary Art and Theory. (DSJ,AH; 3 cr. ; Student Option; Every Fall & Spring)
Introductory overview of contemporary artistic practices/theoretical foundations. Familiarization with contemporary critical/creative practices. Approaches to contemporary art through lens of cultural diversity/social justice.

ARTS 1001H. Honors Introduction to Contemporary Art and Theory. (AH,DSJ; 3 cr. ; A-F or Audit; Every Fall & Spring)
Introductory overview of contemporary artistic practices/theoretical foundations. Familiarization with contemporary critical/creative practices. Approaches to contemporary art through lens of cultural diversity/social justice. Prereq: Honors student

ARTS 1002. Art and Life: Thinking About Ethics Through Art. (AH,CIV; 3 cr. ; Student Option; Every Fall & Spring)
Case examples from visual arts. Ethical theories. Philosophical take on relationship between art, life, ethics.

ARTS 1101. Introduction to Drawing. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This is an introductory studio course that exposes students to the ideas, methods, and materials of drawing. Fundamental elements such as line, value, texture, shape and space are explored in works using media such as graphite, charcoal and ink on a variety of surfaces. Found and other source materials are utilized in collage and mixed-media works. In hands-on exercises and projects, students will create original work based on observation and imagination. This course will also introduce techniques and methods to realize and evaluate visual ideas. Technical demonstrations, lectures and exhibition visits will provide starting points for further explorations. Individual and group critiques will help students to address technical concerns and contextualize their work within the rich history of drawing. Studio work outside of class time is expected.

ARTS 1102. Introduction to Painting. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This is an introductory studio course that will focus on the fundamentals of painting (oil and/or acrylic). We will explore a variety of media, techniques, and subject matter. Our assignments will emphasize developing the skills and understanding of basic painting fundamentals, using traditional and experimental approaches to painting, such as: color mixing and relationships, tone, mark-making, texture, abstraction, space, and visual language. There will be demonstrations, practice, field trip(s) and class discussion. We will develop the verbal and analytical skills necessary to critically examine students' work. We will look at historical and contemporary painters. This course provides an introduction the creative process through hands-on investigation, observation of the immediate environment, and the exploring the artist's imagination. Studio work outside of class is expected.

ARTS 1103. Introduction to Printmaking: Relief, Screen and Digital Processes. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Students will be introduced to techniques of relief printing using oil based inks, screenprinting using water based inks, and digital printmaking. Relief projects (linoleum and woodcut) emphasize the exploration of mark making, printing techniques and color layering. Screen print and digital applications will explore layering, color and image making strategies. Students will learn digital strategies for creating images in screen printing, working from both photo and drawn sources. The course includes the historical context and recent innovations for each process in order to develop contemporary applications for these each method. Students will develop meaningful content in conjunction with the

acquisition of technical skills. Individual and group critiques will help students to address technical concerns and contextualize their work within the rich history of printmaking. Studio work outside of scheduled class time is expected.

ARTS 1104. Introduction to Drawing and Printmaking. (4 cr. ; Student Option; Every Fall & Spring)
This course exposes students to the ideas, methods, and materials of drawing and printmaking. Fundamental elements such as line, value, texture, shape and space are explored in works using media such as graphite, charcoal and ink on a variety of surfaces. Students will be introduced to printmaking methods through monoprinting and other immediate techniques. In hands-on exercises and projects, students will create original work based on observation and imagination. Slide lectures and critiques will help students to address technical concerns and contextualize their work within the rich history of these two graphic media. Studio work outside of scheduled class time is expected.

ARTS 1107. Introduction to Digital Drawing. (AH; 4 cr. ; Student Option; Every Fall & Spring)
This course introduces students to digital drawing as a means of expression. Students will experiment with methods of making marks on a surface or virtual surface, and the materiality and process of making those marks. In this introductory drawing course, students will explore the realm of possibilities of digital technology as an essential component in a contemporary drawing practice. Elements such as line, value, texture, shape and space are explored in works using digital technology. Students will learn the basics of drawing using Wacom Bamboo, Cintiq tablets, and Adobe software applications. This class provides students with hands on experience with technological aids in art making such as a laser cutter, digital router, 3d printers, digital embroidery machine, vinyl cutter, and sonic welder. Students will also gain experience using large format Epson printers with a variety of materials. This class will use drawing to explore conceptual development and critical thinking. Individual and collaborative projects are aimed to provide students with technical ability while building concept and content in the work. Individual and group critiques will help students to address technical concerns and contextualize their work within the rich history of drawing. Studio work outside of scheduled class time is expected.

ARTS 1201. Art + Change: The Transformational Power of Art. (4 cr. ; Student Option; Every Fall & Spring)
Art+ Change: The Transformational Power of Art is an introduction to the complex and varied artist-centered approaches to the social, ethical, political, and environmental challenges of our times. As an emerging form of art, contemporary socially engaged art is not a monolithic practice and goals amongst practitioners exhibit a wide range of approaches. Artists may work towards changing dominant systems in order to foster more positive outcomes; other artists strive to acknowledge and call out complexity and contradictions of those same systems. While artists working in this field, commonly called social practice work, investigate a broad set of topics and media approaches, with varying motivations and intentions, what they share is a foregrounding of the subject and content that informs the work. This course examines the way engaged social art practice can lead to sustained connections and shared visions within communities and institutions; can create a more just and equitable culture; and can address many pressing environmental and social issues of our day. The class investigates the role of the art as a catalyst for social change. We will approach this through questions and dialogue, acknowledging that many of the tensions and contradictions cannot be resolved but are still worth the effort to recognize and address. This course combines a research-based learning environment with a strong studio- based component. Through readings, presentations, field trips, experiential and sensory opportunities, case studies, video presentations, and class project initiatives, we will explore the spectrum of contemporary strategies to a socially engaged approach to art. Students will create hands-on and a culminating collaborative creative project and will learn to identify themes, develop ideas individually, and collectively and execute these ideas through multiple ways of knowing and making of art projects. Through a variety of media, students will be encouraged to explore issues and address themes that they are passionate about. Students will be assessed through their participation in discussion, through their writing, and the quality of their creative projects

ARTS 1202. Art and Yoga: Combining Somatic, Contemplative, and Creative Practices. (3 cr. ; A-F only; Every Fall)
Art and Yoga integrates somatic and creative practices for greater peace, joy, self-acceptance, and vitality. It nurtures your full creative potential and develops your connection to your inner resources through a careful sequencing of yoga and art. Each class opens with yoga, chanting, and meditation, which leads into guided creative exercises with various art materials. This yoga-then-art sequence helps you selectively calm and energize the body/mind prior to experimenting with the expressive arts. Highlighting Kundalini Yoga, during each class we learn a mixture of pranayam (breathing techniques), kriyas (postural asana sequences), and meditations with mudra (hand positions) and mantra (repetition of primal sounds and sacred phrases). Along the way students learn effective self-care practices to manage stress and overwhelm. During the second half of each class, once in a meditative, yogic state, we explore a guided creative prompt, typically using oil pastels, water-based paints and other mixed media for drawing and painting, or pen and paper for creative writing. Occasionally we explore sound and authentic movement. Overall, the course emphasizes the creative process rather than the final outcome; the intention is to cultivate a non-judgmental attitude towards our body/minds and the creative gifts we have to share. You leave the course feeling stronger emotionally, physically, and creatively. Bring a yoga mat and wear comfortable clothing to class. Art materials are supplied for the creative exercises we do during class. The yoga-then-art sequence is also used during your weekly home practice. A list will be provided for you to purchase supplies to use at home, though feel free to use materials you already own. Evaluation based on attendance, participation, quality of engagement, a service component, regular home creative practice, two self-assessment written reports, and one additional home creative project. This class is for all levels of art and yoga backgrounds: although welcome, no previous experience is necessary.

ARTS 1203. Art + The Mississippi River. (4 cr. ; Student Option; Every Fall & Spring)
As the Mississippi River flows through campus, it shapes the site of a seventy-two-mile urban national park in the heart of Dakota homeland. Using the river as a basis for artistic inquiry, research, and collaborative practices, students engage in interdisciplinary creative explorations while learning about water ecologies and politics: mapping, book-making, digital photography, sound portraits, aerial photography, underwater photography, and performance. The Mississippi River, increasingly identified with the University of Minnesota, sparks our collective imagination and connects us through time, water, land, and culture. In this course we will focus on learning about the Mississippi, and ourselves, by cultivating a personal relationship with the river and experimenting with art to convey this. We will examine why place-based learning, systems thinking, and engaged individual and collective creative engagement can lead to out-of-the-box learning, art-making, and innovative solutions to challenging social and ecological problems. Students are not expected to have previous art experience but will be introduced to a number of media approaches. This class provides multiple opportunities to learn about how art intersects with other disciplines, including physics, geology, history, anthropology. Our process will value multiple ways of knowing, generate varied perspectives, emphasize peer-to-peer learning, and introduce a range of creative media, materials, and technologies. Class activities will include traveling on a river boat, launching aerial balloon cameras, visiting cultural, scientific, and historic places, and engaging in conversations with guest artists, architects, composers, scientists, and culture keepers. Many students at the University of Minnesota are looking for ways to be creative in how they connect to issues that they care about. This course introduces approaches that will assist students in learning how to initiate and create these types of art projects and practices.

ARTS 1701. Introduction to Photography. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Presents conceptual, technical, historical aspects of photography within fine arts context.

Emphasis on creative process through hands-on experience in use of camera, digital, black/white, darkroom processes.

ARTS 1704. Introduction to Moving Images. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to Moving Images provides students with the fundamentals of moving image production including camera work, lighting, and sound. Students will explore audio/visual aesthetics and fundamental elements of narrative, experimental, and animated moving images. Students create several short film projects, both individually and in groups and develop skills in critical evaluation through critique sessions that investigate the aesthetic, technical and cultural interpretation of moving images.This course is the prerequisite for intermediate level Department of Art courses in Moving Images including Narrative Digital Filmmaking, Experimental Film and Video, Animation and Super 8 and 16 mm Filmmaking.

ARTS 1801. Introduction to Ceramics: Wheel-Throwing and Hand-Building Techniques. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Interested in working with a material and practice that dates back 20,000 years? Want direct engagement with creative processes and materials that correlate the hand and the eye with the mind? The course introduces an exciting hands-on experience of ceramic three-dimensional object making. The course introduces general aspects of ceramic practice in art form, based on wheel-throwing and hand-building techniques, using electric and gas firing methods. It also deals with the basic visual concepts of three-dimensional form whether utilitarian object or non-utilitarian object. The assignments in this course introduce various fundamental elements, technically and artistically, of artistic ceramic production. Students become familiar with the processes and techniques of working with and firing clay, and also the artistic formal languages and experience of externalizing inner thought. Critiques will be used as a tool for developing critical thinking and project development. Finished pieces will be produced that reflect the full ceramic production experience.

ARTS 1802. Introduction to Sculpture: Understanding the Fundamentals of the Practice of Sculpture. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course will help you gain an understanding of the fundamentals of sculpture through a studio practice with a variety of materials, concepts, techniques, and styles. The course is an introduction to the inherent nature of materials, the development of form in real space, and the shops and tools with which to create sculptural forms in our state-of-the-art facilities. We will focus on the foundations of sculpture through hands-on demonstrations of basic sculptural processes: for example, carving, modeling, assembling, and casting. You will also be exposed to, and experiment with, the diverse range of approaches, work methods, and topics that have occupied sculptors both past and present. Students learn the proper use and function of the wood and metal shops, as well as a variety of other tools and techniques, including new technologies such as the Laser Cutter and VR (Virtual Reality), along with more traditional techniques such as metal casting, paper folding, clay, and plaster. You will discover your individual creative process and aid the sculptural articulation of your conceptual issues through discussion and critique of your class accomplishments. Critiques will be used as a tool for developing critical thinking and project development.

ARTS 1803. Introduction to Sculpture and Ceramics. (4 cr. ; Student Option; Every Fall & Spring)
This course introduces the fundamentals of sculpture and ceramics through a studio practice with a variety of materials, methods, and ideas. Through a studio practice, students will explore hands on experience to find a way to engage with creative production process. The finished pieces will be discussed through various points of views. The instruction in this class will be given through: 1. Demonstrations of techniques 2. Slide presentations and lectures 3. Individual assistance and instruction 4. Individual and group critiques / discussion and evaluation

ARTS 3110. Intermediate Drawing. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
An intermediate level course that expands upon skills learned in beginning drawing. Specialized drawing techniques in dry and wet media will be introduced as well as contemporary, experimental, and conceptual approaches and issues. prereq: 1101 or 1104

ARTS 3120. Intermediate Painting. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
This course explores traditional and nontraditional concepts and techniques of painting and the development of artistic voice. The goal of this course is to provide students with a working knowledge of techniques, materials, processes and aesthetic sensibilities related to contemporary painting. Exploration of individual approach and self- directed concepts are stressed. Students can choose to work with acrylics and/or oils. Studio work outside of scheduled class time is expected. prereq: 1102

ARTS 3130. Intermediate Printmaking: Traditional and Contemporary Approaches. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
The print as vehicle for conceptual/personal expression. Traditional printmaking techniques, evolving contemporary processes for realizing visual concepts. Historical/cultural development of multiple/matrix as means of communication. prereq: 1103 or 1104

ARTS 3140. Figure Drawing. (4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
This course is designed to develop ability in drawing through observation and interpretation of the human form. Some in class work and assignments will be structured with strict limitations, including choices of media. Students will explore contemporary viewpoints and modern aspects of the figure through slide lectures and class discussions. Prereq: 1101 or 1104

ARTS 3150. Dimensional Painting. (; 4 cr. [max 12 cr.] ; Student Option; Every Spring)
This course explores the hybridization of painting, sculpture, and installation. The illusionary space and techniques of two dimensional media is combined and co-exists with three dimensional sculptural approaches. Students will discover their own solutions to painting in space. Formats for projects include wall constructions, wall paintings, object-based paintings, found objects, assemblage, reliefs, floor works, and installations. The students will also explore a vast number of materials, and the technical problems and solutions that are possible. Historical and contemporary artists and concepts that are relevant to dimensional painting will also be introduced. Studio work outside of class is expected. prereq: 1102

ARTS 3170. Intermediate Digital Drawing. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Possibilities of digital technology as tool and component in contemporary, creative drawing practice. prereq: 1107

ARTS 3180. Zines, Comics, and Books. (4 cr. [max 12 cr.] ; A-F or Audit; Every Spring)
This class introduces students to the culture and creation of artists books, comics, and zines. Students will generate one example of each format, while being exposed to a wide range of works and relevant processes. We will view and read examples across cultures and develop an understanding of the history and contemporary context for making artists books. We will look at zines that embrace punk culture, gay culture, counter culture, and feminist movements. We will read graphic novels and connect with the local comics scene. We will visit archives of artists books in the Twin Cities, starting with the impressive collection at the University of Minnesota. Students will learn basic letterpress printing and screen printing as well as other generative techniques for self-publishing, from the copy machine to internet publishing. Students will also be introduced to binding techniques for the artists' book section of this class.

ARTS 3190. Watercolor Painting. (; 4 cr. [max 12 cr.] ; Student Option; Every Spring)
Students will explore expressive and technical possibilities of watercolor including contemporary, traditional, and experimental approaches to painting. They will learn about pictorial structure, color relationships, and forming creative ideas for visual expression. Projects will focus on both representational and abstract imagery. This class encourages the development of critical thinking, self?-evaluation, and the pursuit of independent ideas. Contemporary and historical painting will be introduced as a reference for painting projects. In addition to creating artwork, we will discuss the creative process and artistic practice through selected readings. A goal of

this course is for students to understand the importance of painting as a thinking process and as a language. Prerequisites: ARTS 1101, 1102, or 1104

ARTS 3206W. Art + Ecology. (WI; 4 cr. ; A-F or Audit; Every Fall)
Art + Ecology explores the history, theory, and contemporary practice of artists engaged with the ecological issues of our time. This seminar offers an introduction to the dynamic and emerging field of Environmental Art, focusing on the ways in which artists use creativity to work across disciplines to address ecological concerns. This course investigates the role contemporary artists play as catalysts in relation to a range of concerns, including environmental justice, mass extinction, climate change, and treatment of "waste" as well as issues of the quality of the air, water, soil, and habitat. This seminar also will introduce the notion of artists as agents of change who build communities of ecologically aware practices around interrelated environmental and social issues. Students will be encouraged to see how their creativity and imagination can contribute to finding solutions to pressing environmental problems.

ARTS 3230. Sound Art. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
This Sound Art course is designed to cultivate your curiosity about the sonic as a contemporary art modality. It provides an introduction to diverse practices, techniques, and ways of thinking about sound while encouraging you to develop and expand upon your creative work. Students produce creative projects using sound as primary material. History of experimental sound art from early 20th century to present. Critiques, readings, writing, public presentations will be included weekly. prereq: 1704

ARTS 3240. Making Art Interactive. (; 4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Conceptual/aesthetic development with digital, interactive art. Experimental approaches to interactive technologies. Responsive, tangible media. Critical theory/history of new media. prereq: 1704

ARTS 3250. Art + Performance. (; 4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Studio practice, investigation of forms of expression involving narrative, performance, installation. Hybrid art forms introduced by Dada movement in 1920's, continued by Fluxus movement in 1950's, to contemporary performance/installation artists.

ARTS 3300. Intermediate Sculpture. (4 cr. ; Student Option; Every Fall & Spring)
Studio practice. Historical/contemporary methods/concepts. Personal sculptural thinking in various media platforms. Individual/collaborative modes for contemporary sculptural practice. prereq: [1001, 1301] or [2301, 3390]

ARTS 3401V. Honors: Critical Theories and Their Construction From a Studio Perspective. (AH,WI,CIV; 3 cr. ; A-F or Audit; Every Fall)
This honors course examines primary critical theories that shape analysis of works of art. Evaluation of works from artist's perspective. Theory as organizational structure from which to understand contemporary works. prereq: [junior] or instr consent

ARTS 3401W. Critical Theories and Their Construction From a Studio Perspective. (WI,CIV,AH; 3 cr. ; Student Option; Every Fall & Spring)
Primary critical theories that shape analysis of works of art. Evaluation of works from artist's perspective. Theory as organizational structure from which to understand contemporary works. prereq: instr consent

ARTS 3404W. Professional Practices in the Arts. (WI; 3 cr. ; A-F only; Periodic Fall & Spring)
Professional Practices in the Arts is a course that examines practical applications of presentation, documentation, business skills, and career planning specific to studio art. It provides a foundation of practical information to assist undergraduate and graduate studio majors in building a successful career. The course consists of lectures, discussions, readings, presentations, and demonstrations. The class will spend a significant amount of time discussing different types of art venues and the appropriate contexts for different types of work. Additionally, we will assess and interpret individual students' work as a means to generating appropriate questions and insights for artists statements. prereq: Grad student or [Art BFA student or Art Major, jr or sr]

ARTS 3415H. Honors Exhibition. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Advanced problems in studio and research, leading to a magna or summa exhibition. prereq: [Magna or summa honors candidate], instr consent, dept consent

ARTS 3416H. Honors Thesis: Supporting Paper. (; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Summa thesis paper written in support of honors exhibition or in relation to candidate's visual/conceptual interests. prereq: Summa level honors candidate, instr consent

ARTS 3481. Curatorial Practice Field Experience. (; 3 cr. ; A-F only; Every Fall & Spring)
This course looks at current critical questions of curating and exhibition making. We explore the process of developing an exhibition, building working relationships with artists and understanding how to e?ectively communicate ideas to turn a concept into a project. The course assumes that curating has also evolved from a practice associated with a museum art expert to something that is increasingly framed as a creative marketable skill related to cultural production. Discussions, readings, and coursework include consideration of gallery and public space and audience experience. Curatorial trends will be explored via site visits to established and alternative exhibit spaces. Students are introduced to a wide variety of artists and how their work is contextualized by the exhibition format. Site visits to exhibition spaces and conversations with professional curators reinforce the course material. Through practice and application, students examine the evolving de?nitions and responsibilities of a curator, and a variety of issues related to the development of a coherent and relevant exhibition. Students participate in hands-on, curatorial workshops, and curate a professional, public presentation using a nontraditional space, gallery space, digital space or other local venue.

ARTS 3490. Workshop in Art. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Selected topics and intensive studio activity; topics vary yearly.

ARTS 3499. Internship at Katherine E. Nash Gallery. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Hands-on experience in day-to-day operation/mission of Department of Art's professional gallery. prereq: 1001 or ARTH 1XXX or instr consent

ARTS 3710. Black and White Darkroom Photography. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Classical photographic practice, concentrating on camera and darkroom controls. Historical overview of the medium. Conceptual and contemporary approaches to traditional themes. prereq: 1701

ARTS 3720. The Extended Image. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Manipulation of the photo image using various camera and darkroom methods including sequence, multiples, narrative, and book formats. Marking and altering photographic surfaces, applied color, and toning. Use of the photograph in interdisciplinary projects. prereq: 1701

ARTS 3730. Intermediate Digital Photography. (4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Photographic digital imaging in fine arts. Manipulation, computer applications. Editing in photo imaging software. prereq: 1701

ARTS 3740. Lighting and the Constructed Image. (4 cr. [max 12 cr.] ; Student Option; Every Spring)
Take charge of your photographs and moving images. This class is about making pictures vs. taking pictures. Students will learn to use flash and continuous light sources to shape the content and feeling of your work, to create worlds, characters, and stories. Some projects will be specific to still photography, but you will have the option of working with moving image in others. You will learn principles of lighting that apply to all media. In addition to lighting, the use of props, sets, costumes and digital manipulation will be explored in a series of student projects. We will learn to control and shape light in the studio and on location, in table-top setups and large-scale outdoor productions. We will look at contemporary and historic artists in all genres who are masters of the constructed image. There will be a lot of

hands-on skills taught in this class, but always in the service of exploring and expressing your personal vision. prereq: ARTS 1701 Introduction to Photography

ARTS 3750. Narrative Digital Filmmaking. (4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Narrative forms of video. Documentary, live action, memoir, experimental forms. Digital video production and editing. Personal aesthetic and conceptual directions. Theory, critical readings about historical and contemporary works in video. prereq: [1704 or instr consent]

ARTS 3760. Experimental Film and Video. (4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Experimental approaches in producing digital video within a contemporary art context. Using digital media technologies in installation, performance, and interactive video art. Emphasizes expanding personal artistic development. Theoretical issues, critical/historical readings/writings in media arts. prereq: ARTS 1704

ARTS 3770. Animation. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Creating ideas visually with 2- and 3-dimensional animation technologies. Vector- and layer-based raster animation. Modeling objects and spaces, creating textures, lighting, movement, sound track. prereq: ARTS 1704

ARTS 3780. Super 8 and 16 MM Filmmaking. (4 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
This course will explore the medium of Super 8 filmmaking in the tradition of the experimental and avant ?garde. We will focus on the physicality of the film stock, the basic mechanics of the camera and projector, and how these elements translate into a visual language and aesthetic. Students will learn how to shoot, process, edit, splice, project, and transfer their own super 8 films. This course will balance the technical, conceptual, and historical aspects of small? gauge or amateur analog filmmaking, and address what it means to work in this medium at the beginning of the 21st century. The course will include presentations, readings, and discussions on contemporary and historical artists in the medium, as well as outside film screenings and lectures. Classroom visits by artists will also provide an informed context for the primary course objective.

ARTS 3820. Ceramic: Wheel Throwing. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Expands wheel-throwing skills, develops aesthetic awareness of ceramic forms. Kiln firing, glaze formulation. prereq: 1801

ARTS 3830. Ceramic Sculpture. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Intermediate hand building. Development of abilities, critical awareness. Kiln firing, glaze formulation. prereq: 1801

ARTS 3850. Foundry and Metal Sculpture. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Metal casting of sculpture in bronze, iron, aluminum, other metals. Studio practice, investigation of historical/contemporary methods and concepts. Development of personal sculptural imagery. prereq: ARTS 1802

ARTS 3860. Sculpture and Installation. (4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
This class will examine the historical and contemporary aspects of sculpture installation art. The structure of this studio course provides space for in-depth research, idea development, individual exploration, experimentation, play and critical feedback. This course is not media specific, you will be working with materials that work with the concepts in your practice. You are encouraged to explore the use of sound, video and performance in your installations. A generous amount of studio time is allowed for studio work and personal exploration augmented by readings, field trips and visiting artist lectures. prereq: 1802

ARTS 3890. 3D Modeling and Digital Fabrication. (4 cr. [max 12 cr.] ; Student Option; Every Spring)
In this class, students will learn the basic skills of 3D computer modeling and digital fabrication to generate objects using the Department of Art's 3D Printers, 3-axis CNC Router and Laser Cutter. Instruction includes computer modeling in Adobe Illustrator and Rhino, transfer of files and object fabrication.

ARTS 3896. Internship. (; 1-3 cr. [max 6 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Field work at local, regional, national, or international arts organization or with professional artist provides experience in activities/administration of art/art-based organizations. prereq: BFA Art major, instr consent

ARTS 5105. Advanced Dimensional Painting. (; 4 cr. ; Student Option; Every Spring)
Illusionary space applied to sculptural forms. Practical applications of spatial/painterly concepts. Emphasizes critical/visual judgment. Development of cohesive body of work reflecting interaction of two/three dimensions. prereq: 3105 or instr consent

ARTS 5110. Advanced Drawing. (; 4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
This studio course provides students the opportunity to investigate individual ideas and work on self-guided projects within a communal learning environment. Students will be encouraged to develop and execute their ideas with skillfulness and clarity. Through a consideration of diverse materials and practices, students will develop a proficiency in the language of contemporary drawing or painting. This course is designed to assist students in making connections between their own work and larger global themes and issues. Group and individual critiques, field trips, reviewing the work of other artists and readings will supplement studio work. Students are expected to spend time working on their projects outside of scheduled class time. prereq: Art major and ARTS 3110

ARTS 5120. Advanced Painting. (; 4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
This studio course provides students the opportunity to investigate individual ideas and work on self-guided projects within a communal learning environment. Students will be encouraged to develop and execute their ideas with skillfulness and clarity. Through a consideration of diverse materials and practices, students will develop a proficiency in the language of contemporary painting. This course is designed to assist students make connections between their own work and larger global themes and issues. Group and individual critiques, field trips, reviewing the work of other artists and readings will supplement studio work. Students are expected to spend time working on their paintings outside of scheduled class time. prereq: ARTS 3120 and ARTS major

ARTS 5140. Advanced Printmaking. (; 4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
In-depth research of personal imagery using a broad range of historical and contemporary applications. Development of imagery using color, photo-mechanical, digital processes. Cross-media approaches. Prereq: ARTS major and ARTS 3130

ARTS 5230. Advanced Art + Sound. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Sound art practice/theory. Emphasizes individual creative projects using sound as primary material. History of experimental sound art from early 20th century to present. Critiques, readings, writing, public presentations. prereq: ARTS major and 3605 or 3230

ARTS 5250. Art + Performance. (; 4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Studio practice in performance art and installation; investigation of historical and contemporary methods and concepts of interdisciplinary expression. Development of personal imagery. Prereq: ARTS major

ARTS 5260. Art + Interdisciplinary Collaborations. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Interdisciplinary, collaborative artist teams explore modes of creative expression at intersections of the arts. Students collaborate to co-author/produce works of art for pubic presentation. Emphazes integration of media arts with visual art, music, dance, and theater to produce interdisciplinary/collaborative art. prereq: Upper-division undergraduate or graduate student in art, creative writing, dance, music or theater.

ARTS 5401W. BFA Seminar Capstone 1: Concepts and Practices in Art. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Various ideologies, cultural strategies that influence practice/interpretation of art. Emphasizes diversity of viewpoints. Application of issues in developing final BFA exhibition.

ARTS 5404. BA Capstone and Exhibition. (3 cr. ; S-N only; Every Fall & Spring)

The BA Captstone and Exhibition will focus on building professional skills, developing a strong studio practice, and preparing for an exhibition in Regis Center Public Spaces.

ARTS 5407. BFA Capstone 2: Critique and Exhibition. (; 4 cr. ; A-F only; Every Spring)
This critique-based seminar will provide a structured critical forum for the discussion of your work, help you to verbally articulate and defend your work and prepare you in the presentation of your work. This is a self-motivated and self-directed class. It is expected that you will produce a substantial amount of work to show in this course. Your work is self-directed Artwork created from assignments (in other classes) will not be critiqued. Each artist will have two one-hour critiques of their work over the course of the semester. Critiques may include members from the arts community such as local artists, MIA, Midway Contemporary Art, Walker Art Center, The Soap Factory and Franklin Artworks. Grades are based on critique participation, attendance and your artist presentation. This class culminates in the BFA Exhibition in the Nash Gallery. Throughout the semester, we will meet with Nash Gallery staff to develop this final show.

ARTS 5490. Workshop in Art. (; 1-4 cr. [max 48 cr.] ; Student Option; Every Fall, Spring & Summer)
Selected topics and intensive studio activity. Topics vary yearly.

ARTS 5610. New Media: Making Art Interactive. (; 4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Conceptual/aesthetic development with digital, interactive art. Experimental approaches to interactive technologies. Projects with responsive/tangible media. Theory/history of new media. prereq: 3601 or instr consent

ARTS 5710. Advanced Photography and Moving Image Projects. (; 4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Design/implementation of individual advanced projects. Demonstrations, lectures, critique. Reading, writing, discussion of related articles/ exhibitions. prereq: previously completed a 3XXX course in Photography or Moving Images and Art major

ARTS 5740. Lighting and the Constructed Image. (4 cr. [max 12 cr.] ; Student Option; Every Spring)
Take charge of your photographs and moving images. This class is about making pictures vs. taking pictures. Students will learn to use flash and continuous light sources to shape the content and feeling of your work, to create worlds, characters, and stories. Some projects will be specific to still photography, but you will have the option of working with moving image in others. You will learn principles of lighting that apply to all media. In addition to lighting, the use of props, sets, costumes and digital manipulation will be explored in a series of student projects. We will learn to control and shape light in the studio and on location, in table-top setups and large-scale outdoor productions. We will look at contemporary and historic artists in all genres who are masters of the constructed image. There will be a lot of hands-on skills taught in this class, but always in the service of exploring and expressing your personal vision. prereqs: ARTS Major

ARTS 5750. Advanced Narrative Digital Filmmaking. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Narrative forms of video. Documentary, live action, memoir, experimental forms. Digital video production and editing. Personal aesthetic and conceptual directions. Theory, critical readings about historical and contemporary works in video. prereq: 3750

ARTS 5760. Experimental Film and Video. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Experimental approaches in producing digital video within a contemporary art context. Using digital media technologies in installation, performance, and interactive video art. Emphasizes expanding personal artistic development. Theoretical issues, critical/ historical readings/writings in media arts. prereq: ARTS major

ARTS 5770. Animation. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Creating ideas visually with 2- and 3-dimensional animation technologies. Vector- and layer-based raster animation. Modeling objects and spaces, creating textures, lighting, movement, sound track. prereq: Art major

ARTS 5780. Advanced Super 8 and 16 MM Filmmaking. (4 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
This course will explore the medium of Super 8 filmmaking in the tradition of the experimental and avant ?garde. We will focus on the physicality of the film stock, the basic mechanics of the camera and projector, and how these elements translate into a visual language and aesthetic. Students will learn how to shoot, process, edit, splice, project, and transfer their own super 8 films. This course will balance the technical, conceptual, and historical aspects of small gauge or amateur analog filmmaking, and address what it means to work in this medium at the beginning of the 21st century. The course will include presentations, readings, and discussions on contemporary and historical artists in the medium, as well as outside film screenings and lectures. Classroom visits by artists will also provide an informed context for the primary course objective. Prereq: Art major

ARTS 5810. Advanced Ceramics. (; 4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Critical discourse of aesthetics. History of, contemporary issues in clay and criticism. Independent, advanced projects. prereq: ARTS major and ARTS 3820 or ARTS 3830

ARTS 5850. Advanced Foundry and Metal Sculpture. (4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Metal casting of sculpture in bronze, iron, aluminum, other metals. Studio practice, investigation of historical/contemporary methods and concepts. Development of personal sculptural imagery. prereq: Art major

ARTS 5860. Advanced Sculpture. (; 4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
This advanced Sculpture course is a self-motivated and self-directed studio class to help you develop and maintain a personal studio practice. The structure of this studio course provides space for in-depth research, idea development, individual exploration, experimentation, play and critical feedback. Prereq: ARTS major and ARTS 3860

ARTS 5890. 3D Modeling and Digital Fabrication. (4 cr. [max 12 cr.] ; Student Option; Every Spring)
In this class, students will learn the basic skills of 3D computer modeling and digital fabrication to generate objects using the Department of Art's 3D Printers, 3-axis CNC Router, and Laser Cutter. Instruction includes computer modeling in Adobe Illustrator and Rhino, transfer of files, and object fabrication. Prereq: ARTS major

ARTS 5990. Independent Study in Art. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Independent study project designed by student in consultation with instructor. prereq: Major, completed regular course with instructor, instr consent

Art History (ARTH)

ARTH 1001. Introduction to Art History: Prehistoric to Contemporary. (AH; 4 cr. ; Student Option; Every Fall & Spring)
Major monuments/trends in art, prehistoric to present. Style, subject matter, patronage. Reconstructing artworks' original setting: religious, political, and social contexts. Western canon, occasionally in comparison with non-Western works.

ARTH 1002W. Why Art Matters. (AH,WI,GP; 4 cr. ; Student Option; Every Fall)
Introduction to history of topics that investigate power/importance of art both globablly and in its diverse forms, from architecture and painting to video and prints. Sacred space, propaganda, the museum, art/gender, art/authority, tourism.

ARTH 1004W. Introduction to Asian Art. (HIS,WI; 4 cr. ; Student Option; Every Fall & Spring)
This one-semester course is an introduction to painting, sculpture, and architecture from South, Southeast, and East Asia. It will cover works from ancient cultures to those of contemporary Asian diasporas. Resisting the impossible task of covering everything, we will instead home in on specific objects in order to understand them in their broader cultural, religious, and social contexts. We will trace the ways in which common themes and problems appear in different art forms and in different places, and we will discover the ways in which seemingly disparate styles and objects may be productively understood in conversation with each other. We will work together to create an interpretive model that is synthetic, critical, and appreciative of the enormously diverse field that is Asian Art. Lectures will move

from explanatory descriptions of objects and histories that are covered in the textbook to critical interpretations of the historiographies that shape the contemporary reception of Asian art.

ARTH 1921W. Introduction to Film Study. (AH,WI; 4 cr. ; Student Option; Every Fall)
Fundamentals of film analysis and an introduction to the major theories of the cinema, presented through detailed interpretations of representative films from the international history of the cinema.

ARTH 3005. American Art. (AH; 3 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
Artistic practice in the United States: colonial period to cold war. America as idea/identity shaped, expressed, represented, and contested through art. Canon of American art history. Works by individuals outside of traditional channels of art instruction/reception. Questions about what does/does not count as art history.

ARTH 3009. Medieval Art. (AH; 3 cr. ; Student Option; Every Fall & Spring)
Medieval art in Western Europe, from around 1000 to the mid-14th century. Works from France, Spain, Germany, Italy, and England examined in their historical context. Cross cultural relations, development of completely new forms of art and techniques, and the processes of realization.

ARTH 3012. 19th and 20th Century Art. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Major monuments/issues of modern period. Sculpture, architecture, painting, prints. Neo-classicism, romanticism, realism, impressionism, evolution of modernism, symbolism, fauvism, cubism, dadaism, surrealism, abstract expressionism, pop art, conceptualism, postmodernism.

ARTH 3013. Introduction to East Asian Art. (GP; 3 cr. ; Student Option; Every Fall)
A selective examination of works of art produced in China, Korea and Japan from the neolithic era to modern times. Nearly every major type of object and all major styles are represented.

ARTH 3014W. Art of India. (AH,WI,GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Indian sculpture, architecture, and painting from the prehistoric Indus Valley civilization to the present day.

ARTH 3015W. Art of Islam. (AH,WI,GP; 4 cr. ; Student Option; Every Fall)
Architecture, painting, and other arts from Islam's origins to the 20th century. Cultural and political settings as well as themes that unify the diverse artistic styles of Islamic art will be considered.

ARTH 3018. Art of the Ottoman Empire. (3 cr. ; Student Option; Periodic Fall & Spring)
This course offers a wide-ranging introduction to visual culture under the Ottoman Empire. Initially formed as a small principality at the beginning of the fourteenth century in Anatolia, the Ottoman polity established itself as a major political and military power through the early modern period and beyond. With emphasis placed upon key monuments and objects, we will examine an array of artistic media, ranging from manuscript illumination and calligraphy to ceramics, textiles, metalwork, glasswork and jewelry. Major themes include the urban transformation of the Byzantine capital; the formation of imperial ideology and its visual articulation, the formation of a distinctive imperial style across media; the operation of court ateliers and societies of artists and artisans; contacts and interactions with the European and Islamic contemporaries; and cultural and artistic "decline."

ARTH 3019. Buddhist Art and Architecture. (3 cr. ; Student Option; Periodic Fall & Spring)
This class provides an introduction to Buddhist art and architecture, from the sixth-century BCE to the present. Beginning with the life of the historical Buddha (563-483), it will follow the development of Buddhist art in India before tracing it across the Silk Road to China, Korea, and Japan. The class will consider how art and architecture evolved to serve the needs of Buddhism as its doctrine and practice evolved. At the same, we will consider how Buddhist cosmology and metaphysics were translated into culturally specific modes that served the multifarious cultural and artistic traditions of Asia.

ARTH 3152. Art and Archaeology of Ancient Greece. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
This course will provide an introduction to the history of Greek art, architecture and archaeology from the formation of the Greek city states in the ninth century BCE, through the expansion of Greek culture across the Mediterranean and Asia in the Hellenistic period, to the coming of Rome in the first century BCE. While this survey concentrates on the main developments of Greek art, an important sub-theme of this course this is the changes Classical visual culture underwent as it served non-Greek peoples, including the role it played for Alexander and his successors in forging multiethnic, globally minded empires in Western, Central and South Asia. No background in the time period or discipline is expected and therefore this class will also serve as an introduction to interdisciplinary study of art history and the classical world. A number of art historical methodologies will be introduced in order to not only give students a useful background in art history but to give them the tools to think as art historians and incorporate related visual and textual evidence meaningfully into their writing.

ARTH 3162. Roman Art and Archaeology. (HIS; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Introduction to history of Roman art, from formation of city-state of Rome under Etruscan domination, to transformation of visual culture in late antiquity under peoples influenced by the Romans.

ARTH 3182. Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia. (AH,GP; 3 cr. ; Student Option; Every Fall & Spring)
This course will provide students with foundational knowledge in the art, architecture, and archaeology of Egypt, East Africa, Asia Minor, Mesopotamia, Iran and Central Asia from the Neolithic through Late Antiquity (ca. 7,000 B.C.E. - 650 C.E.). Students will gain an understanding of the relationship between the visual material and the social, intellectual, political, and religious contexts in which it developed and functioned. In this regard, students will also gain an understanding of the evolution of, and exchanges and differences among, the visual cultures of these time periods and regions. It will also expose them to the preconditions for contemporary geopolitics in the region.

ARTH 3216W. Chicana and Chicano Art. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
A Chicana/o has been described as a Mexican-American with a political sense of identity that emerges from a desire for social justice. One journalist bluntly stated, "A Chicano is a Mexican-American with a non-Anglo image of himself" (Ruben Salazar, Los Angeles Times, 1970). This identity emerged through the Chicano Movement, a social and political mobilization that began in the 1960s and 1970s. The Chicano Movement witnessed the rise of community-based political organizing to improve the working conditions, education, housing opportunities, health, and civil rights for Mexican-Americans. For its inception, the Chicano Movement attracted artists who created a new aesthetic and framework for producing art. A major focus of Chicana/o artists of the 1960s and 1970s was representation, the right to self-determination, and the role of art in fostering civic and public engagement. This focus continues to inform Chicana/o cultural production. Social intervention, empowerment, and institutional critique remain some of the most important innovations of American art of the last several decades, and Chicana/o artists played a significant role in this trend.

ARTH 3309. Renaissance Art in Europe. (AH; 3 cr. ; A-F or Audit; Every Fall & Spring)
Major monuments of painting/sculpture in Western Europe, 1400-1600. Close reading of individual works in historical context. Influence of patrons. Major social/political changes such as Renaissance humanism, Protestant Reformation, market economy.

ARTH 3311. Baroque Art in Seventeenth Century Europe. (AH; 3 cr. ; Student Option; Every Spring)
Dominant trends/figures of Italian, French, Flemish, and Dutch Baroque period. Works of major masters, including Caravaggio, Bernini, Poussin, Velazquez, Rembrandt, and Rubens. Development of illusionistic ceiling decoration. Theoretical basis of Baroque art. Art's subservience to Church and royal court.

ARTH 3312. European Art of the Eighteenth Century: Rococo to Revolution. (HIS; 3 cr. ; Student Option; Every Fall)
Major developments in 18-century painting, sculpture, and interior decoration, from emergence of Rococo to dawn of

Neoclassicism. Response of art to new forms of patronage. Erotics of 18-century art. Ways art functioned as social/political commentary.

ARTH 3313. Spanish Baroque Masters: Tradition and Experimentation in Golden Age Spain. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
This seminar focuses on some of the major masters of Spanish Baroque art, including Francisco de Zurbar?n, Diego Vel?zquez, Jusepe de Ribera, Bartolom? Esteban Murillo, and Juan S?nchez Cot?n. We will explore their works from a variety of perspectives in an effort to understand the unique character and contributions of the art of the Spanish Golden Age.

ARTH 3315. The Age of Curiosity: Art, Science & Technology in Europe, 1400-1800. (AH,TS; 3 cr. ; Student Option; Periodic Fall & Spring)
Diverse ways in which making of art and scientific knowledge intersected in early modern Europe. Connections between scientific curiosity and visual arts in major artists (e.g., da Vinci, Durer, Vermeer, Rembrandt). Artfulness of scientific imagery/ diagrams, geographical maps, cabinets of curiosities, and new visual technologies, such as the telescope and microscope.

ARTH 3335. Baroque Rome: Art and Politics in the Papal Capital. (HIS; 3 cr. ; Student Option; Fall Even Year)
Center of baroque culture--Rome--as city of spectacal and pageantry. Urban development. Major works in painting, sculpture, and architecture. Ecclesiastical/private patrons who transformed Rome into one of the world's great capitals.

ARTH 3401. Art on Trial. (AH,CIV; 3 cr. ; Student Option; Periodic Fall & Spring)
Analysis of visual representations in fine arts and popular media, in context of social issues. Obscenity, censorship, democracy, technology, commerce, the museum, propaganda, social role of artist. Understanding the contemporary world through analysis of dominant aesthetic values.

ARTH 3422. Off the Wall: History of Graphic Arts in Europe and America in the Modern Age. (; 3 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
History/theory of creation of lithography, social caricature (e.g., Daumier, Gavarni), revival of etching (e.g., Goya/mid-century practitioners, Whistler), and color lithography (e.g., Toulouse-Lautrec, Vuillard, Bonnard). Media changes of 20th century. Revolutionary nature of new media.

ARTH 3434. Art and the Environment. (AH,ENV; 3 cr. ; Student Option; Every Fall & Spring)
Historical development of land, earth, and environmental art since 1968. Artists' engagement with environmental problems. Responses to changing aesthetic, political, biological, economic, agricultural, technological, and climactic conditions from global perspective.

ARTH 3464. Art Since 1945. (HIS; 3 cr. ; Student Option; Periodic Spring)
Broad chronological overview of U.S./ international art movements since 1945. Assessment of critical writings by major theoreticians (e.g., Clement Greenberg) associated with those movements. Theoretical perspective of postmodernism.

ARTH 3577. Photo Nation: Photography in America. (AH; 3 cr. ; Student Option; Every Fall & Spring)
Development of photography, from 19th century to present. Photography as legitimate art form. Portraits/photo albums in culture. Birth of criminal justice system. Technological/ market aspects. Politics of aesthetics. Women in photography. Ways in which idea of America has been shaped by photographs.

ARTH 3627. Seminar: Harlem Renaissance. (3 cr. ; Student Option; Every Fall)
Review Harlem Renaissance from variety of perspectives. Literary, historical, cultural, political, international. Explore complex patterns of permeation/interdependency between worlds inside/outside of what W.E.B. Du Bois called "Veil of Color."

ARTH 3655. African-American Cinema. (AH,DSJ; 3 cr. ; Student Option; Spring Even Year)
African American cinematic achievements from silent films of Oscar Micheaux through contemporary Hollywood and independent films. Class screenings, critical readings.

ARTH 3777. The Diversity of Traditions: Indian Empires after 1200. (3 cr. ; Student Option; Periodic Fall & Spring)
This class considers the development of Indian and Pakistani art and architecture from the introduction of Islam as a major political power at the end of the 12th century to the colonial empires of the 18th century. We will study how South Asia?s diverse ethnic and religious communities interacted, observing how visual and material cultures reflect differences, adaptations, and shared aesthetic practices within this diversity of traditions. Students in this class will have mastered a body of knowledge about Indian art and probed multiple modes of inquiry. We will explore how Muslim rulers brought new traditions yet maintained many older ones making, for example, the first mosque in India that combines Muslim and Indic visual idioms. We will study the developments leading to magnificent structures, such as the Taj Mahal, asking why such a structure could be built when Islam discourages monumental mausolea. In what ways the schools of painting that are the products of both Muslim and Hindu rulers different and similar? The course will also consider artistic production in the important Hindu kingdoms that ruled India concurrently with the great Muslim powers. In the 18th century, colonialist forces enter the subcontinent, resulting in significant innovative artistic trends. Among questions we will ask is how did these kingdoms influence one another? Throughout we will probe which forms and ideas seem to be inherently Indian, asking which ones transcend dynastic, geographic and religious differences and which forms and ideas are consistent throughout these periods of political and ideological change. To do all this we must constantly consider how South Asia's diverse ethnic and religious communities interact. There are no prerequisites for this course.

ARTH 3778. Traditions of South Asian Painting: Past to Present. (3 cr. ; Student Option; Periodic Fall & Spring)
This course surveys the rich diversity of painted media in India, Pakistan, Sri Lanka, and Nepal, from 5th-century murals to contemporary canvases that travel the world. We will locate the works in their physical, ritual, and intellectual contexts. We will explore how the familiar categories with which we describe painting, such as Landscape, Portraiture, Narrative, and even Modern, might be productively reassessed in light of South Asian aesthetic traditions by locating the works in their physical, ritual, and intellectual contexts. The course culminates in the contested spaces of contemporary art, where questions of politics, identity, and intention come to the fore. Although mainly focusing on the painting traditions of India, the course will include painting from Pakistan, the Himalayas, Sri Lanka, and the South Asian diaspora. The humanities sharpen our ability to develop critical questions and to judge why and how one answer or interpretation may be stronger than another. Humanistic thinking is developed in dialogue; it emerges between individuals in conversation with each other and with their objects of study. This course asks you to boldly bring your curiosity, convictions, and blind-spots to our collective conversation, close reading, and individual writing. The course consists of two weekly meetings, and one or two trips to nearby museums or galleries.

ARTH 3896. Directed Professional Experience. (; 1-2 cr. ; Student Option; Every Fall, Spring & Summer)
Internship or research assistantship in approved program, art institution, business or museum. prereq: instr consent

ARTH 3921W. Art of the Film. (AH,WI; 4 cr. ; Student Option; Every Spring)
History of the motion picture as an art form; major films, directors, genres, and styles. Films discussed include THE BIRTH OF A NATION, CITIZEN KANE, BICYCLE THIEF, RASHOMON, and JULES AND JIM.

ARTH 3929. Cinema Now. (AH; 3 cr. ; Student Option; Fall Odd Year)
Course examines contemporary cinema, including fiction films, documentaries, animation, and avant-garde experiments. Focuses on feature-length theatrical films, but will also consider other aspects of the contemporary media world: graphic novels, video games, television series and the Internet (e.g., Youtube). Examines media production, distribution, marketing, exhibition, and reception. Course will also present a survey of developments in contemporary cinema studies, since the choice of films will support a variety of critical approaches including economic, aesthetic (generic, auteurist, formalist),

ideological (race, class, gender), and reception studies.

ARTH 3940. Topics in Art History. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

ARTH 3971V. Honors: Art History Capstone. (WI; 3 cr. ; A-F only; Every Fall & Spring)
Capstone course for art history majors, which teaches writing skills and strategies, and aids students in the completion of senior paper projects through the study of art historical methods. Students work with both the class instructor and individual faculty advisers on independent research and writing.

ARTH 3971W. Art History Capstone. (WI; 3 cr. ; A-F only; Every Fall & Summer)
Capstone course for art history majors, which teaches writing skills and strategies, and aids students in the completion of senior paper projects through the study of art historical methods. Students work with both the class instructor and individual faculty advisers on independent research and writing. prereq: ArtH major, instr consent

ARTH 3993. Directed Study. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
TBD prereq: instr consent

ARTH 3994. Directed Research. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Every Fall)
TBD prereq: instr consent

ARTH 5302. The Image Multiplied: Prints in Early Modern Europe. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
The technology of mechanically reproducing complex visual images on paper, a development of fifteenth-century Europe, transformed the early modern world no less than the emergence of digital media has transformed our own. Techniques of woodcut, engraving and etching quickly became important media for innovation within the fine arts. At the same time, they became equally important as sources for devotional imagery, for disseminating copies of other artworks, for the expansion of knowledge through scientific illustration, and for the effective broadcasting of political and religious messages during centuries of extraordinary political and religious upheaval. In this course we will investigate the cultural history of printed images in Europe from the time of their emergence in the fifteenth century through the mid-eighteenth century. Through lectures and class discussion, you will develop a familiarity with the technical aspects of printmaking and apply that understanding to the historical interpretation of specific works. The course will not be an exhaustive survey of printmakers and printmaking styles during the early modern era but will instead approach the early modern print through the changing cultural circumstances of its production and reception. While we will consider the work of many lesser-known (and anonymous) artists, we will concentrate on the work of major printmakers such as Mantegna, D?rer, Goltzius, Rembrandt, Callot, Hogarth, and Piranesi. The course will include visits to local collections.

ARTH 5313. Spanish Baroque Masters: Tradition and Experimentation in Golden Age Spain. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
This seminar focuses on some of the major masters of Spanish Baroque art, including Francisco de Zurbar?n, Diego Vel?zquez, Jusepe de Ribera, Bartolom? Esteban Murillo, and Juan S?nchez Cot?n. We will explore their works from a variety of perspectives in an effort to understand the unique character and contributions of the art of the Spanish Golden Age.

ARTH 5315. The Age of Curiosity: Art, Science & Technology in Europe, 1400-1800. (AH,TS; 3 cr. ; Student Option; Periodic Fall & Spring)
Diverse ways in which making of art and scientific knowledge intersected in early modern Europe. Connections between scientific curiosity and visual arts in major artists (e.g., da Vinci, Durer, Vermeer, Rembrandt). Artfulness of scientific imagery/ diagrams, geographical maps, cabinets of curiosities, and new visual technologies, such as the telescope and microscope.

ARTH 5335. Baroque Rome: Art and Politics in the Papal Capital. (; 3 cr. ; Student Option; Fall Even Year)
Center of baroque culture--Rome--as city of spectacle and pageantry. Urban development. Major works in painting, sculpture, and architecture. Ecclesiastical/private patrons who transformed Rome into one of the world's great capitals.

ARTH 5336. Transformations in 17th Century Art: Caravaggio, Velazquez, and Bernini. (3 cr. ; Student Option; Periodic Fall & Spring)
This course offers an in-depth examination of three of the most innovative masters of early modern European art, the painters Michelangelo Merisi da Caravaggio and Diego Vel?zquez, and the sculptor and architect Gianlorenzo Bernini. Through selected readings, slide presentations and discussions, we will explore the lives and works of these artists, paying particular attention to the ways they created an entirely new relationship between the work of art and the viewer and ushered in a radically new way of conceiving visual imagery.

ARTH 5411. Gender and Sexuality in Art Since 1863. (; 3 cr. ; Student Option; Periodic Fall & Spring)
History of art from late 19th to early 21st century. How gender/sexuality have been central to that period?s artistic production, art criticism, and aesthetic theorization. How gender/sexuality are important themes for artists. How the writing of history reveals assumptions about gender/sex. Critical reading/writing.

ARTH 5413. Alternative Media: Video, Performance, Digital Art. (; 3 cr. ; A-F or Audit; Periodic Fall)
In-depth examination of development of alternative media in 20th/21st century art. Video technologies. Performance, time based art. Digital art. prereq: 3464 or instr consent

ARTH 5417. Twentieth Century Theory and Criticism. (; 3 cr. ; Student Option; Periodic Fall)
Trends in 20th-century art theory, historical methodology, criticism. Key philosophical ideas of modernism/postmodernism: formalism, semiotics, poststructuralism, feminism, marxism, psychoanalysis, deconstruction. prereq: 3464 or instr consent

ARTH 5422. Off the Wall: History of Graphic Arts in Europe and America in the Modern Age. (; 3 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
History/theory of creation of lithography, social caricature (e.g., Daumier, Gavarni), revival of etching (e.g., Goya, mid-century practitioners, Whistler), and color lithography (e.g., Toulouse-Lautrec, Vuillard, Bonnard). Media changes of 20th century. Revolutionary nature of new media.

ARTH 5431. Art and Activism: French Painting 1789 to 1870. (3 cr. ; Student Option; Periodic Fall)
This course surveys art major movements, institutions, and debates in France and its expanding overseas empire from the late eighteenth to the late nineteenth centuries, paying particular attention to the intersection of art and politics. Artists and movements we will consider include some of the most well-researched and revered in art history: neo-classicism-David and Ingres; Romanticism-Corot, Gericault, Delacroix; landscape and peasant?painting-the Barbizon group; Realism-Courbet; and Impressionism-Manet, Pissarro, Morisot, and Degas. Major themes to be addressed in the course include, but are not limited to, the following: artists? challenge to established institutions and exhibition practices; their participation in, and responses to, revolutionary political movements; the artist as worker; censorship and exile; visions of empire and abolition; the New Woman; and, finally, contemporary artists? appropriations of nineteenth-century French art to advance their own artistic/political agendas in the present.

ARTH 5466. Contemporary Art. (; 3 cr. ; Student Option; Periodic Spring)
Survey of the art and important critical literature of the period after 1970. Origins and full development of postmodern and subsequent aesthetic philosophies. prereq: 3464 or instr consent

ARTH 5655. African-American Cinema. (AH,DSJ; 3 cr. ; Student Option; Periodic Fall)
African American cinematic achievements, from silent films of Oscar Micheaux through contemporary Hollywood and independent films. Class screenings, critical readings.

ARTH 5765. Early Chinese Art. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Art/material culture of early China from Neolithic age (ca. 10000-2000 BCE) to early imperial period (221 BCE-906 CE).

ARTH 5766. Chinese Painting. (3 cr. ; Student Option; Periodic Fall & Spring)
Major works from the late bronze age to the modern era that illustrate the development of

Chinese landscape painting and associated literary traditions.

ARTH 5769. Connoisseurship and Curatorial Practice in Early Chinese Art. (; 3 cr. ; Student Option; Periodic Fall & Spring)
This course provides students an immersive experience in the study of early Chinese art and material culture from the Neolithic age (ca. 8000?ca. 2000 BCE) to the early imperial period (221 BCE-220 CE). Geographical coverage uses today's China as a point of departure, but its scope also extends to the rest of the world. This course will explore artifacts in a variety of media, including ceramic, jade, metal, lacquer, silk, painting and writing, as well as ephemeral arts. Students are expected to think each artwork as the embodiment of the complex socio-cultural history of the period, in which they were produced. Guided by the instructor, students will have a selective examination of representative works of art from MIA (the Minneapolis Institute of Art), where they are supposed to be engaged in comprehensive object study, consultation and investigation with the curators, and develop essential curatorial skills of working with artworks. Based on two or more selected artworks, students are expected to finish a short research paper that is throughly studied and potentially publishable.

ARTH 5777. The Diversity of Traditions: Indian Empires after 1200. (; 3 cr. ; Student Option; Periodic Fall & Spring)
This class considers the development of Indian and Pakistani art and architecture from the introduction of Islam as a major political power at the end of the 12th century to the colonial empires of the 18th century. We will study how South Asia?s diverse ethnic and religious communities interacted, observing how visual and material cultures reflect differences, adaptations, and shared aesthetic practices within this diversity of traditions. Students in this class will have mastered a body of knowledge about Indian art and probed multiple modes of inquiry. We will explore how Muslim rulers brought new traditions yet maintained many older ones making, for example, the first mosque in India that combines Muslim and Indic visual idioms. We will study the developments leading to magnificent structures, such as the Taj Mahal, asking why such a structure could be built when Islam discourages monumental mausolea. In what ways the schools of painting that are the products of both Muslim and Hindu rulers different and similar? The course will also consider artistic production in the important Hindu kingdoms that ruled India concurrently with the great Muslim powers. In the 18th century, colonialist forces enter the subcontinent, resulting in significant innovative artistic trends. Among questions we will ask is how did these kingdoms influence one another? Throughout we will probe which forms and ideas seem to be inherently Indian, asking which ones transcend dynastic, geographic and religious differences and which forms and ideas are consistent throughout these periods of political and ideological change. To do all this we must constantly consider how South Asia?s diverse ethnic and religious communities interact.

ARTH 5778. Traditions of South Asian Painting: Past to Present. (3 cr. ; Student Option; Periodic Fall & Spring)
This course surveys the rich diversity of painted media in India, Pakistan, Sri Lanka, and Nepal, from 5th-century murals to contemporary canvases that travel the world. We will locate the works in their physical, ritual, and intellectual contexts. We will explore how the familiar categories with which we describe painting, such as Landscape, Portraiture, Narrative, and even Modern, might be productively reassessed in light of South Asian aesthetic traditions by locating the works in their physical, ritual, and intellectual contexts. The course culminates in the contested spaces of contemporary art, where questions of politics, identity, and intention come to the fore. Although mainly focusing on the painting traditions of India, the course will include painting from Pakistan, the Himalayas, Sri Lanka, and the South Asian diaspora. The humanities sharpen our ability to develop critical questions and to judge why and how one answer or interpretation may be stronger than another. Humanistic thinking is developed in dialogue; it emerges between individuals in conversation with each other and with their objects of study. This course asks you to boldly bring your curiosity, convictions, and blind-spots to our collective conversation, close reading, and individual writing. The course consists of two weekly meetings, and one or two trips to nearby museums or galleries.

ARTH 5781. Age of Empire: The Mughals, Safavids, and Ottomans. (; 3 cr. ; Student Option;)
Artistic developments under the three most powerful Islamic empires of the 16th through 19th centuries: Ottomans of Turkey; Safavids of Iran; Mughals of India. Roles of religion and state will be considered to understand their artistic production.

ARTH 5783. Art, Diplomacy and Empire. (3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the mobility and agency of objects and people in diplomatic practice. An emerging body of scholarship within Renaissance and early modern studies explores the exchange and global circulation of objects and their role in cultural encounters. The possibilities offered by this 'material turn' highlight the potential of objects to enable cultural contact, conversion and exchange across traditional political and cultural boundaries. At the same time, recent innovative and interdisciplinary approaches to exchange highlight cultural aspects of the diplomatic encounter. As a result, the roles of diplomats, interpreters, merchants as well as various types of objects and services continue to be interpreted in new ways. This course will introduce students to canonical texts associated with gift-exchange and reciprocity, and will explore their relevance to the disciplines of history and art history particularly with regard to imperial encounters and exchanges.

ARTH 5785. Art of Islamic Iran. (; 3 cr. ; Student Option;)
Architecture, painting, and related arts in Iran from the inception of Islam (7th century) through the 20th century. Understanding the nature of Islam in Persianate cultural settings and how artistic production here compares to the Islamic world.

ARTH 5787. Visual Cultures in Contact: Cross-Cultural Interaction in the Ancient and Early Medieval Worlds. (3 cr. ; Student Option; Fall Even Year)
Evaluate critical perspectives from variety of interdisciplinary conversations. Framework for studying cross-cultural interaction among ancient visual cultures that integrates practical, cognitive, object oriented approaches. Cross-continental movement/selective appropriation of objects/motifs.

ARTH 5930. Junior-Senior Seminar. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Major art-historical theme, artist, period, or genre. Topics specified in Class Schedule. prereq: [Jr or sr] ArtH major, instr consent

ARTH 5950. Topics: Art History. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

ARTH 5993. Directed Study. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
TBD prereq: instr consent

ARTH 5994. Directed Research. (; 1-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
tbd prereq: instr consent

Arts and Cultural Leadership (ACL)

ACL 5100. Topics in Arts and Cultural Leadership. (; 1-4 cr. [max 24 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
Topics in Arts and Cultural Leadership.

ACL 5211. Trends and Impacts in Arts and Cultural Leadership and Management. (3 cr. [max 6 cr.] ; A-F or Audit; Every Fall)
Through discussion and analysis, research and peer presentation projects, this seminar will investigate and question the theoretical nuances from which nonprofit arts and cultural organizations are built and the practical influences that affect them daily. Leadership in the cultural sector is evolving rapidly; textbook strategies are being re- evaluated and organizations are re-inventing themselves in creative ways in response to current social and economic conditions. Emphasis is placed on current events, immediate and long- term trends and research into what is happening now. Topics include the role of arts and cultural organizations within the community; past, current and future concepts in organizational structures; and the application of traditional and integrated relationship-based strategies.

ACL 5221. Creative Entrepreneurship and Resource Development. (3 cr. ; A-F or Audit; Every Spring)
An entrepreneurial approach to developing resources (including financial, human, and partnership) for arts and culture based

enterprises whether using a nonprofit, for-profit or social enterprise business model. The course will investigate and discuss the complexities and nuances of how to determine the appropriate business model and develop both earned and philanthropic income. Students focus on framing and articulating the relevance of the enterprise as well as understanding the perspectives of audiences, customers, funders and donors. The course also explores the role of communications strategies in support of fundraising, and the importance of leadership in acquiring resources to sustain and grow successful organizations. Students develop both a broad understanding of resources as well as detailed strategies for supporting work in arts and culture based enterprises.

ACL 5231. Ethical Dilemmas and Legal Issues for Cultural Leaders. (3 cr. ; A-F or Audit; Every Spring)
This course explores topics in ethics, law and leadership. Through interactive sessions, readings, presentations, discussions, papers and guest speakers, student-leaders will develop knowledge, tools and resources for assessment of ethical and legal issues within arts and cultural contexts. The course will engage student-leaders with an overview of relevant topics and a foundation for further exploration of self selected topics. Student-leaders will learn to spot issues and identify when to seek legal guidance, and assess considerations relevant to critical problem solving and informed decision-making.

ACL 5241. Financial Management for Arts Nonprofits. (2 cr. ; A-F or Audit; Every Fall)
This course introduces students to concepts and applications of financial management and leadership practices for nonprofits with a specific focus on arts and cultural organizations. The goal of the course is to develop both theoretical and practical understanding of the central responsibilities of financial management and leadership in order to equip students to use financial information, identify business models, and employ a financial lens for planning and decisions. Focus will be on the fundamentals of budgeting and accounting, interpretation of financial statements, data, and procedures for operational forecasts, as well as the fiduciary responsibilities of nonprofit boards.

ACL 5251. Courageous Imagination in Action: Art and Culture as Forces and Resources of Change. (3 cr. ; A-F or Audit; Every Fall)
This class is for anyone passionate about the unique capacities embedded in arts and cultural work, concerned about the cascade of challenges facing humanity, and determined to lead with and through the powerful resources of the arts and culture. Fundamental changes in organizations, programs, and resources are needed to meet the complex challenges of our times. A key emphasis of the course is development of a personal mission and purpose by each student as a leader in working with existing organizations and systems and leading changes essential for a sustainable, humane, creative, and thriving future. The course is designed to challenge and support students as they choose a direction and purpose they wish to address ? contacts, examples, resources, local, regional, national, websites, people, and examples will be provided. The course examines existing organizations and systems, those in transformation and the opportunity, need and challenge in creating new forms. Students meet key people in different sectors and stages of change. This is a highly interactive course, with simulations, imaginative work and a variety of visitors, site visits, and explorations of ideas and beliefs that may be challenging. These may include connections with Minnesota State legislature, regional arts councils, City of Minneapolis and/or St Paul, large and small arts and culture organizations in the area. National networks including USDAC, Americans for the Arts, Climate Generation, The Wounded Warrior Project, and others. Students will prepare a presentation that links their personal purpose and mission with the work they seek and the differences they hope to make and support.

ACL 5251. Courageous Imagination in Action: Art and Culture as Forces and Resources of Change. (3 cr. ; A-F only; Every Fall)
This class is for anyone passionate about the unique capacities embedded in arts and cultural work, concerned about the cascade of challenges facing humanity, and determined to lead with and through the powerful resources of the arts and culture. Fundamental changes in organizations, programs, and resources are needed to meet the complex challenges of our times. A key emphasis of the course is development of a personal mission and purpose by each student as a leader in working with existing organizations and systems and leading changes essential for a sustainable, humane, creative, and thriving future. The course is designed to challenge and support students as they choose a direction and purpose they wish to address ? contacts, examples, resources, local, regional, national, websites, people, and examples will be provided. The course examines existing organizations and systems, those in transformation and the opportunity, need and challenge in creating new forms. Students meet key people in different sectors and stages of change. This is a highly interactive course, with simulations, imaginative work and a variety of visitors, site visits, and explorations of ideas and beliefs that may be challenging. These may include connections with Minnesota State legislature, regional arts councils, City of Minneapolis and/or St Paul, large and small arts and culture organizations in the area. National networks including USDAC, Americans for the Arts, Climate Generation, The Wounded Warrior Project, and others. Students will prepare a presentation that links their personal purpose and mission with the work they seek and the differences they hope to make and support.

ACL 5261. Culture, Place, and Community: Ways of Living Together in the 21st Century. (3 cr. ; A-F or Audit; Periodic Summer)
The rise of the creative economy, creative cities, and creative class is generally considered unique to the 21st century. Or are these phenomena just new brand identities for the historic role of cities and art making? They have also been linked to a rise in social and economic inequity. During this same time, along with creativity, culture ? as in ethnic and national culture ? is of increasing significance in the ways cities and communities are planned, form, and function. What roles do artists and other cultural leaders, urban planners, and civic leaders play with regard to these emerging trends and the inequities that come with them? This course explores the evolution of arts, culture, and the creative sector and their changing relationships to community planning, development, and democracy. Students will hear directly from community leaders and undertake their own community research.

ACL 5950. Special Topics. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
Special topics. prereq: dept consent

ACL 5993. Directed Studies. (; 1-4 cr. [max 15 cr.] ; A-F only; Every Fall, Spring & Summer)
Guided individual reading or study for qualified graduate students. prereq: Grad student, dept consent

Asian & Middle Eastern Studies (AMES)

AMES 1001. Asian Film and Animation. (AH,GP; 3 cr. ; Student Option; Every Fall)
Various film styles within Asian film/animation production. Ways of analyzing film. Work of 20th-century directors in Asia.

AMES 1201. Arrow, Fist, and Sword: Conceptions of the Hero in Asian Cultures. (GP,LITR; 3 cr. ; A-F only; Periodic Fall & Spring)
Concepts of the "hero" in Persian, Indian Chinese, Korean, and Japanese cultures: How did various societies in these countries define the ethos of the "hero" and his relationship to the community? How did versions of the hero change over time, and how was the hero redefined in the context of modern nationalism? What part have traditional gender roles played in defining the hero, and is a "female" hero possible within these traditions? And how has popular film allowed modern Asian societies to reinterpret their traditional conceptions of the hero? Specific explorations: the Persian hero Rostam in The Book of Kings; Rama and retellings of the Indian Ramayana; Mulan and the Chinese female warrior; the Korean hero Hong Gildong; and the Japanese story of the forty-seven ronin.

AMES 1601. Clothing Matters: Culture and Fashion in India. (3 cr. ; Student Option No Audit; Periodic Fall & Spring)
This interdisciplinary course demonstrates the importance of dress and adornment practices in the formation of collective identities in

India. By exploring past and current trends in literature, art, media and performance, it shows how cultural texts construct norms and practices regarding space, body and gender. It also focuses on ways different social groups and communities, through creative acts of (un)dressing in the public sphere, create a complex relationship between structures of power and aesthetics. In addition to highlighting the significance of gender and material culture in Indian literature, this course traces the history of dress practices to offer new perspectives on class, caste, religion and nationalism. The readings will further highlight historical and political events where clothing and accessories become crucial sites for resisting established social order and registering collective protest. Texts will also be complemented with screenings of films to show the rich and complex intersection of dress practices with discourses of tradition and modernity.

AMES 1806. Modern Arab Cultures and Societies. (3 cr. ; Student Option No Audit; Periodic Fall & Spring)
What we commonly and monolithically refer to as "The Arab World" in fact consists of 22 individual nation-states, each with their own particular historical trajectory and a combined population of nearly 400 million people encompassing a plethora of religious faiths, political orientations, social formations, and individual identities. This course provides a starting point for comprehending this frequently misunderstood part of the world, the diverse peoples who inhabit it, and the myriad cultures they practice. We will address the various problems we encounter when approaching such an unwieldy concept as "The Arab World," key moments that have shaped modern Arab cultures and societies, and examples of how cultural production functions in the context of modern Arab history and politics.

AMES 3001. Concepts in Asian and Middle Eastern Studies. (; 3 cr. ; A-F or Audit; Periodic Fall)
Introduction to questions of modernity in Asia and the Middle East and foundational course for the major and the minor in Asian and Middle Eastern Studies. Reflecting the range of geography covered by the department, it will cover topics related to the Middle East, South Asia, and East Asia, and highlight connections among them. Our primary goal is to become versed in a number of key concepts and issues that are essential to being a successful student in upper-division AMES courses. Furthermore, we will engage with theoretical, literary, and filmic texts concerning various regions of the Asian continent and develop the ability to respond to major questions in Asian and Middle Eastern Studies through the close reading of primary and secondary materials and the practical employment of key terms and concepts. There will be a strong focus on proper definitions and historical contextualization, and on analytical application and interpretation.

AMES 3014W. Art of India. (AH,WI,GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Indian sculpture, architecture, and painting from the prehistoric Indus Valley civilization to the present day.

AMES 3232W. "Short" Poetry in China and Japan. (WI; 3 cr. ; Student Option; Spring Even Year)
Short poetic forms of China and Japan. Chinese quatrains and octets. Japanese tanka and haiku. Translations by modern poets. Texts in original languages (with provided glosses). Art of translation. Translators' conceptions of East Asian 'exoticism.'

AMES 3250. Topics in Asian Film and Media. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Examines theme, problem, region, style or filmmaker in Asian cinema. Focuses on (geo)political and socioeconomic contexts in relation to artistic and interpretive frameworks.

AMES 3265W. The Fantastic in East Asia: Ghosts, Foxes, and the Alien. (LITR,WI; 3 cr. ; Student Option; Periodic Fall & Spring)
How the strange/alien is constructed in premodern Chinese/Japanese literature. East Asian theories of the strange and their role in the classical tale, through the works of Pu Songling, Edo-era storytellers, and others. Role of Buddhist cosmology and salvation. prereq: Some coursework in East Asia recommended

AMES 3336. Revolution and Modernity in Chinese Literature and Culture. (GP,LITR; 3 cr. ; A-F only; Every Fall)
Introduction to modern Chinese literature, visual culture, and critical thought from beginning of 20th century to end of Mao era. Examples of literature/culture, parallel readings of Chinese critical essays. Readings are in English translation.

AMES 3337. Contemporary Chinese Literature and Popular Culture. (GP,LITR; 3 cr. ; A-F only; Every Spring)
Contemporary Chinese literature, popular culture. End of Mao era to present. Creative results of China's "opening and reform." Commercialization and globalization of culture. Literature, visual culture, popular music.

AMES 3351. Martial Arts in Chinese Literature and Film. (3 cr. ; A-F only; Periodic Fall & Spring)
Investigation of the martial arts motif in Chinese literature and its cinematic descendants. Class materials include ancient stories about sage kings, assassin-retainers, lady knights-errant; recent blockbusters such as "Crouching Tiger, Hidden Dragon," "Hero," and "Kung Fu Hustle;" the careers and stardoms of Bruce Lee, Jet Li, and Jackie chan; and American animated films featuring martial arts themes, such as "Mulan" and the "Kung Fu Panda" series. While reflecting cultural transformations across history, these examples manifest a consistent poetics of emptiness, due to the genre's thematic preoccupation with resistance and transcendence, as well as its roots in Confucian-Daoist-Buddhist philosophies. In these regards, the martial arts genre, other than being a pop culture phenomenon, offers a meaningful gateway toward rediscovering the Chinese tradition's cosmopolitan potentials.

AMES 3356W. Chinese Film. (AH,WI; 3 cr. ; A-F or Audit; Spring Odd Year)
Survey of Chinese cinema from China (PRC), Taiwan, and Hong Kong. Emphasizes discussion/comparison of global, social, economic, sexual, gender, psychological, and other themes as represented through film.

AMES 3357. Taiwan Film. (3 cr. ; A-F only; Every Spring)
This course examines the history of Taiwan film from the Japanese colonial period to the early 21st century along with the increased (though still quite limited) availability of pre-1980s films on DVD with English subtitles. We will cover topics such as dialect films; Nationalist propaganda; "healthy realism;" connections with the Hong Kong, Hollywood, and mainland Chinese film industries; the aesthetics of New Taiwan Cinema; the imagination of Taiwan as a postcolonial Southeast Asian rather than East Asian or Chinese polity; and the battle for commercial viability in the global film market. Throughout the course, we will closely analyze cinematic form and narrative structure in addition to broader issues of nation, society, politics, and ecology.

AMES 3362. Women Writers in Chinese History. (3 cr. ; A-F only; Periodic Fall & Spring)
This class provides a survey of the surprisingly diverse and vibrant tradition of women writers in Chinese literary history, which during its long imperial period (221 B.C.E.-1911 C.E.) was dominated by a male-centered cultural order. The class situates individual women writers within their specific historical settings and larger cultural backdrops, thus introducing students to literary themes, gender dynamics, and conditions of cultural production in Chinese history. The class also addresses complex shifts in female writing and its social presence across the premodern-modern transition. Taught in English and no prerequisites.

AMES 3372. History of Women and Family in China, 1600-2000. (3 cr. ; Student Option; Fall Even, Spring Odd Year)
Marriage/family life, foot binding, cult of women's chastity. Women in nationalist/ communist revolutions. Gender relations in post-socialist China. Effect of ideologies (Confucianism, nationalism, socialism) on women/family life. Differences between ideology and social practice.

AMES 3373. Religion and Society in Imperial China. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
Varieties of religious experience in imperial China. Religion as lived practices. Textual traditions. Buddhism, Daoism, Confucianism, relations among them. Western missionary enterprise in China.

AMES 3374. Patterns in Chinese Cultural History. (3 cr. ; Student Option No Audit; Periodic Fall & Spring)
A survey course of Chinese cultural history across its long evolution. It connects historical and cultural knowledge to the Chinese literary and intellectual traditions, and unveils larger trends in the developments of Chinese culture

and society during the pre-20th-century period and across the tradition-modern divide. Taught in English and no prerequisites.

AMES 3377. A Thousand Years of Buddhism in China: Beliefs, Practices, and Culture. (; 3 cr. ; Student Option; Fall Even Year)
Buddhism in China, 4th-15th centuries. Introduction of Buddhism to China. Relevance of Buddhist teaching to indigenous thought (e.g., Taoism, Confucianism). Major "schools": Tiantai, Huayan, Chan/Zen, etc.. Cultural activities of monks, nuns, and lay believers.

AMES 3420. Topics in Japanese Culture. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics in Japanese culture. Topics specified in the Class Schedule.

AMES 3433. Traditional Japanese Literature in Translation. (LITR; 3 cr. ; A-F or Audit; Fall Odd Year)
Survey of texts in different genres, from 8th to early 19th centuries, with attention to issues such as "national" identity, gender/sexuality, authorship, popular culture. No knowledge of Japanese necessary.

AMES 3436. Postwar Japanese Literature in Translation. (; 3 cr. ; Student Option; Every Fall)
Survey of ideas/styles of recent Japanese literature. Writers include Dazai Osamu, Ibuse Masuji, Oe Kenzaburo, Mishima Yukio, and Yoshimoto Banana. All readings in English translation. prereq: Basic knowledge of modern Japanese history helpful, knowledge of Japanese language not required

AMES 3437. The Japanese Novel. (GP,LITR; 3 cr. ; A-F only; Every Fall)
Survey of the principal authors of the period spanning Japan's opening to the West (1860s) to World War II. Writers include Natsume Soseki, Shiga Naoya, Kawabata Yasunari, Edogawa Rampo, Hayashi Fumiko, and Tanizaki Junichiro.

AMES 3441W. Japanese Theater. (AH,WI; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Japanese performance traditions. Emphasizes noh, kabuki, and bunraku in their literary/cultural contexts. Relationship between these pre-modern traditions and modern theatrical forms (e.g., Takarazuka Revue).

AMES 3442. Performing Arts in Japan and Their Cultural Backgrounds. (GP; 3 cr. ; A-F only; Periodic Spring)
Taught entirely overseas in Japan, this instructor-led Learning Abroad Center course engages a diverse and representational range of Japanese theatrical traditions including but not limited to Noh, Kyogen, Bunraku, Kabuki, Takarazuka, and Butoh. We explore the links among medieval traditions of "performance of offering" to Buddhist and Shinto deities, entertainment of elite audiences, and new theatrical work based on anime, manga, and martial arts. We will experience, firsthand and in person, Japanese performing arts in their original cultural locations, such as Tokyo, Nara, and Osaka. This course consists of class discussions and lecture, attending theatrical productions at playhouses and vaudeville theaters, special lectures by prominent guest speakers, and observation of several kinds of "performance of offering" at temples and shrines. As a winter-term course, our seminar takes place during an exciting time of year for this topic: we begin with "new-year count down" ("joya no kane") at a temple where the giant bell rings 108 times. In addition, playhouses will be filled with a special, new-year atmosphere, thus offering a unique opportunity to learn about New Year celebrations in Japan and about the Japanese performing arts highlighting these celebrations.

AMES 3456. Japanese Film. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
Themes, stylistics, and genres of Japanese cinema through work of classic directors (Kurosawa, Mizoguchi, and Ozu) and more recent filmmakers (Itami, Morita). Focuses on representations of femininity/masculinity.

AMES 3457. War and Peace in Japan Through Popular Culture. (; 4 cr. ; A-F or Audit; Periodic Fall & Spring)
War-related issues in Japan. Animation films, comics from 1940s to 1990s. Mobilization of culture for WWII. Conflict between constitutional pacifism/national security. Japan's role in cold war/post-cold war worlds.

AMES 3458. Japanese Animation. (GP; 3 cr. ; A-F only; Periodic Fall & Spring)
This course takes up the technologies, genres, and themes of Japanese animation. By examining the works of important directors alongside media theories and other related writings, the course will cover not only the major genres and recurrent themes of anime, but also the cultural and critical contexts for apprehending anime.

AMES 3466. Japanese Popular Culture in a Global Context. (; 3 cr. ; Student Option; Periodic Spring)
What happens when one nation's popular culture begins to permeate others. Japanimation, manga, fashion, and music. Relationship of popular culture to nation(alism), ethnicity, gender, and identity. Effects of popular culture on consumers, socialization. Ways that consumption affects us personally.

AMES 3467. Science Fiction, Empire, Japan. (3 cr. ; A-F only; Fall Even Year)
Premised on its historical position as a non-Western colonial empire, this course takes up Japan as a focal point for examining the relations between science fiction and imperialism. Discussions center on the colonial underpinnings of Japanese science fiction and how particular motifs (future war, time travel, posthuman bodies) critically interrogate this history.

AMES 3468. Environment, Technology and Culture in Modern Japan. (ENV; 3 cr. ; Student Option; Fall Even Year)
Read/view historical, literary, visual texts to discover guiding ideas about nature, environment, technology use in Japan. No prior knowledge of Japan is necessary.

AMES 3471. Introduction to Japanese Religions. (3 cr. ; Student Option; Periodic Fall)
An introduction to the development of different forms of religious practice in Japan over the past fourteen hundred years. A survey of Japanese religions and their development will be combined with specific examples (past and present) that demonstrate the way that religious belief has manifested itself in various forms of cultural practice.

AMES 3478. Modern Japan, Meiji to the Present (1868-2000). (HIS; 3 cr. ; Student Option; Every Fall & Spring)
Japan's development as industrial/imperial power after Meiji Restoration of 1868. Political developments in Taisho years. Militarization/mobilization for war in 1930s. Japan's war with China, Pacific War with US. American Occupation. Postwar economic recovery, high growth. Changing political/popular culture of 1980s, '90s.

AMES 3520. Topics in Korean Culture. (; 1-3 cr. [max 9 cr.] ; A-F only; Periodic Fall & Spring)
Selected topics in Korean culture. Topics specified in the Class Schedule.

AMES 3536. Modern Korean Literature. (GP,LITR; 3 cr. ; Student Option; Every Fall)
Modern Korean literature in English translation from the colonial period until the 1990s. Read literary texts critically, using genre categories, theories of narrative voice, different understandings of modern literary subjectivity, and historical contextualization.

AMES 3556. Korean Film and Media. (AH,GP; 3 cr. ; Student Option; Periodic Fall & Spring)
This course is an introduction to Korean film from the Japanese colonial period (1910-1945) to the present day. We discuss the emergence of the Korean film industry under the conditions of colonial modernity and the various political pressures put on film production in South Korea until the 1990s. We will then turn to the last twenty years, during which South Korean film and television have experienced a boom in popularity in East Asia and globally. Throughout, we will focus on the formal and technical aspects of film, representations of history and historical memory, genre borrowing and genre mixing, and the relationships between art-house and culture industry productions.

AMES 3576. Language & Society of the Two Koreas. (3 cr. ; A-F only; Every Spring)
This course is designed to offer an introduction and contrastive analysis of the language and society of the two Koreas; the Republic of Korea (better known as South Korea) and the Democratic People?s Republic of Korea (better known as North Korea). This course will introduce the growing divide of the past 70 years between North and South Korea in the areas of language, society, and culture.

AMES 3586. Cold War Cultures in Korea. (3 cr. ; A-F only; Every Fall)
In this course we will analyze the Cold War (1945-1989) not only as an era in geopolitics,

but also as a historical period marked by specific cultural and artistic forms. We focus on the Korean peninsula, looking closely at the literary and film cultures of both South Korea and North Korea. We discuss how the global conflict between U.S.-centered and Soviet-centered societies affected the politics, culture, and geography of Korea between 1945 and 1989, treating the division of Korea as an exemplary case extending from the origins of the Cold War to the present. We span the Cold War divide to compare the culture and politics of the South and the North through various cultural forms, including anti-communist and socialist realist films, biography and autobiography, fiction, and political discourse. We also discuss the legacy of the Cold War in contemporary culture and in the continued existence of two states on the Korean peninsula. The primary purpose is to be able to analyze post-1945 Korean cultures in both their locality and as significant aspects of the global Cold War era.

AMES 3620. Topics in South Asian Culture. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Topics specified in Class Schedule.

AMES 3636. South Asian Women Writers. (3 cr. ; A-F only; Periodic Spring)
Survey of South Asian women's writing, from early years of nationalist movement to present. Contemporary writing includes works by immigrant writers. Concerns, arguments, and nuances in works of women writing in South Asia and diaspora.

AMES 3637W. Modern Indian Literature. (GP,WI,LITR; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Survey of 20th century literature from South Asian countries, including India, Pakistan, and Sri Lanka. All readings in English. Focuses on colonialism, post-colonialism, power, and representation.

AMES 3638. Islam and Modernity in South Asia. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This course explores the multiple genealogical trajectories of Islamic thought in South Asia through the varied lens of its literary traditions. For centuries, literature has remained an important site for the expression of Islamic identity and its interaction with the larger history of the subcontinent. Muslim writers have traversed diverse domains of human experience through multiple genres: while poetry has been a widely celebrated genre for the expression of private love, drama has emerged as a crucial site for public politics and activism. In this course, students will read texts that have circulated across South Asia and interpret them in relation to enduring questions about power, justice, identity, community and love (both human and divine) in Islam. Reading a wide array of works from diverse temporal and spatial locations, this course examines how the aesthetic and discursive world of South Asia provides a terrain on which the Islamic "socius" of the region has come to define itself in a unique manner. In addition, we also investigate how these literary cultures-at different historical junctures-articulated a secular ethos to define Hindu-Muslim relations in the subcontinent. We further discuss questions of genres-epic, romance, drama, novel and lyric-as a way of thinking about the circulation of literary forms across languages, cultures and national spaces in the past and the present.

AMES 3651. Ghosts of India. (GP; 3 cr. ; A-F only; Every Spring)
Writers, filmmakers, and other creative art practitioners from almost every corner of this living world use the figure of the ghost to address questions of ethics, justice, violence, and repression. This course focuses on India's modern ghosts as well as ghosts and spirits from classical Indian literature. In every sphere of our lives, public and private, we are chased by various ghosts that often appear in forms of memory, remembrance, nostalgia, and forgetfulness. Ghosts scare us, enchant us, and capture our imagination. Our intellectual engagement will consist of theorizations around the figure of the ghost and its various conceptual offshoots (hauntology, specter, the uncanny, etc.) as encountered through literary and filmic texts. The course will also connect these ghostly tales with issues of nationalism, gender, communal and ethnic violence, and capitalism.

AMES 3671. Hinduism. (3 cr. ; Student Option; Periodic Fall & Spring)
Development of Hinduism focusing on sectarian trends, modern religious practices, myths/rituals, pilgrimage patterns/ religious festivals. Interrelationship between Indian social structure/Hinduism.

AMES 3672. Buddhism. (GP; 3 cr. ; Student Option; Summer Even Year)
Historical and contemporary account of the Buddhist religion in Asia/world in terms of its rise, development, various schools, practices, philosophical concepts, and ethics. Current trends in the modern faith and the rise of "socially engaged" Buddhism.

AMES 3673. Survey of India: Languages, Literature, and Film. (GP; 3 cr. ; A-F or Audit; Every Spring)
Survey course of Indian languages and literatures that explores the languages of India from genealogical, linguistic, typological, historical and sociological perspectives. Diachronic analysis of the languages of India in relation to some structural features will be also investigated. This course will also provide an overview of literatures of several main South Asian languages with a focus on Hindi - Urdu literatures. We will address the origin of Hindi-Urdu literatures, periodization, and naming of each period. We will also examine the important writers and their representative work, along with the literary trends and influences of each period, including political, social, and cultural situations which helped to shape the writers and their work. Among the representative literary works in Hindi-Urdu, some have been made into films.

AMES 3679. Religion and Society in Modern South Asia. (3 cr. ; A-F only; Periodic Fall & Spring)
Survey of religious formations in modern South Asia (Hindu, Islamic, Sikh, Buddhist). Transformation of religious practice/thought in modernity. Relation between religion and nationalism. Geopolitical dimensions of religious transformation in South Asia.

AMES 3771. History of Southeast Asia. (GP; 3 cr. ; A-F or Audit; Every Fall & Spring)
Origins of civilization/indigenous states. impact of world religions and Western colonialism on gender, social, political, and economic structures. Nationalism. Establishment of Vietnam, Thailand, Indonesia, and the Philippines.

AMES 3772. Hmong Language and Culture Immersion in China. (4 cr. ; A-F only; Every Summer)
This instructor-led study abroad course in Kunming, China, focuses on Hmong language and culture in the trans-historical context of China. Students will gain a deeper understanding of the intricate differences within the Hmong linguistic and cultural diaspora through a comparative approach examining the complexity of Hmong dialects and regional cultural shifts. Instructors will work with all student levels, and instruction is oriented towards helping students learn to use the language effectively. All aspects of linguistic performance - speaking, reading, writing and listening - will be addressed. Open to all students interested in Hmong language and culture, regardless of language level.

AMES 3773. Hmong Language and Culture Immersion in Thailand. (GP; 4 cr. ; Student Option No Audit; Periodic Summer)
This is an instructor-led study abroad course in Thailand. Hmong in the United States trace their story of diaspora directly to Thailand as the most recent country of immigration. While many traced their refugee stories to Thailand, before immigrating to the United States and other countries, Thailand is also a country where many Hmong settled. Thailand is a country of many Hmong stories, intertwined with settlement, immigration, social economic struggles and successes, language development, and more. This study abroad course will focus on learning, observing and exploring the Hmong diaspora through language and culture in Thailand. The course will explore the historical, cultural, and linguistic contexts of Hmong settlement and immigration in Thailand as well as compare to contexts of Hmong in the United States.

AMES 3776. Hmong History Across the Globe. (3 cr. ; Student Option; Fall Odd, Spring Even Year)
Hmong interaction with lowland Southeast Asian states (Laos, Vietnam) and Western colonial powers (French, American) since 19th century. Changes to religious, social, political, and gender institutions. Aspirations for political autonomy.

AMES 3800. Topics in Arab Literature. (; 3 cr. [max 9 cr.] ; A-F only; Periodic Fall & Spring)
Topics specified in Class Schedule.

AMES 3820. Topics in Arab Culture. (; 3 cr. [max 9 cr.] ; A-F only; Periodic Fall & Spring)

Topics specified in Class Schedule.

AMES 3832. The Politics of Arabic Poetry. (GP,LITR; 3 cr. ; A-F only; Every Spring)
This course engages with Arabic poetry in its socio-political context. How have Arab poets from the pre-Islamic era till the present time used their verse as a tool to affirm the structure of their society, or to struggle with it? What roles did Arabic poetry play at the Abbasid imperial courts? How does Arabic poetry participate in the constitution and promulgation or subversion of political ideologies? And what presence has it had in Arab peoples' struggles for independence or reform, historically and today as part of the Arab Spring?

AMES 3856W. Palestinian Literature and Film. (GP,WI; 3 cr. ; A-F only; Periodic Fall & Spring)
This course examines modern literature and film of the Palestinian people both for artistic significance and interactions with the broader historical and political situations confronted by Palestinians. We will ask how cultural production, namely literature and film, interacts with, responds to, and even anticipates historical and political events. At the same time, we will problematize a strictly historicist and political reading of literary and cinematic texts, which reduces such artistic works to mere sociological documents, overlooking their creative and artistic achievements. Ultimately, this leads us to a number of questions: what is the relationship between history/politics and art? Can artistic texts transcend the historical and political contexts in which they are produced? How has artistic production functioned within the context of Palestinian statelessness, exile, and anti-colonial struggle? All texts covered in the course will be in English translation, however those able to read texts in the original Arabic are encouraged to do so.

AMES 3866. Arab American Experiences. (3 cr. ; A-F only; Every Fall)
Arab diasporic experiences in the West, and in America in particular, have been mediated by popular depictions of "the Arab" as violent terrorist, oppressor of/oppressed woman, religious fanatic, and myriad other negative stereotypes, heightened since September 11, 2001. How do Arabs in America, especially youth, navigate the superimposition of these images upon them? How do they relate to the multiple locations of "home" between the West and the Arab world? To what extent are they perpetually "out of place," and what strategies have they developed to navigate their liminal and often marginalized social position? Through the examination of memoirs, novels, film, music, and even food, this course will use Arab American cultural production as a lens through which to explore these questions.

AMES 3867. Orientalism and the Arab World. (3 cr. ; A-F only; Periodic Fall & Spring)
This course explores the various manners in which "the Arab World" is constructed and re/presented in western discourses. Through scholarly writings such as Samuel Huntington's "The Clash of Civilizations" thesis and popular media such as television's Homeland, this course illuminates how the idea of a monolithic "Arab World" and quintessential "Arab" subject are constructed and re/produced for western consumption. Crucially, moreover, this course also examines how this re/production of the "Arab World/Subject" is integral to the construction of western identity itself, serving as a foil to western self-conceptualization. This course also examines how individuals and peoples who are the object of the orientalist gaze have attempted to respond to and subvert orientalist discourses and stereotypes, as well as scholarly critiques of Edward Said's orientalism thesis itself.

AMES 3868. Culture and Society of the Arabian Peninsula. (3 cr. ; A-F only; Periodic Fall & Spring)
This course revolves around the study of issues and cultural trends in the societies of the Arabian Peninsula, particularly Saudi Arabia, Qatar, the United Arab Emirates, Kuwait, and Bahrain. After an introduction on the historical development of these states, topics we cover include nation-building and heritage construction; the meaning of tribalism and "Bedouinness" today; social stratification and sectarianism; issues of gender; labor and migration; and local production of literature, poetry and film. In the last four weeks of the semester, we will read three novels composed by local authors. This course is taught in English.

AMES 3871. Islam: Religion and Culture. (3 cr. ; Student Option; Every Fall)
This course is a brief survey of the religion and civilization of Islam. It introduces students to 1) Islamic history from its inception in the seventh century CE to the present, with emphasis on the life of the Prophet Muhammad and the early Caliphate; 2) The authoritative texts of Islam, i.e. the Quran and Prophetic traditions (Hadith); 3) The institutions and discourses characteristic of Islamic civilization; and 4) The transformation of Muslim life and thought in the modern period. By taking this course, students become familiar with the chief ideas, characters, narratives, rites, localities, and movements associated with Islam. prereq: Soph or jr or sr

AMES 3872. The Cultures of the Silk Road. (3 cr. ; Student Option; Every Fall & Spring)
Past/present state of cultures that flourished in Central Asia (present-day CA republics, Iran, Afghanistan) after Alexander the Great. Decline with opening of sea routes.

AMES 3896. Internship for Academic Credit. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor. A student may only earn credit for a given internship through one course at a time.

AMES 3900. Topics in Asian Literature. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

AMES 3920. Topics in Asian Culture. (; 3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
Topics specified in Class Schedule.

AMES 3993. Directed Study. (1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Individual reading/study, with guidance of a faculty member, on topics not covered in regular courses. Prereq-instr consent, dept consent, college consent.

AMES 4901W. Capstone Project in Asian Languages & Literatures. (WI; 3 cr. ; A-F or Audit; Every Spring)
The capstone project in the department of Asian Languages and Literatures is meant to demonstrate the cumulative language, critical thinking, and analysis skills developed by students over the course of their undergraduate studies. It consists of a thesis of at least 6000 words, in which students must synthesize research in primary language sources (i.e. texts, films, or other forms of cultural production in the original language of student's declared subplan) with secondary research. prereq: ALL major, sr

AMES 5250. Advanced Topics in Asian Film and Media. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Examines theme, problem, region, style or filmmaker in Asian cinema. Focuses on (geo)political and socioeconomic contexts in relation to artistic and interpretive frameworks.

AMES 5277. Space and Modernity in Asia. (3 cr. ; Student Option; Periodic Fall & Spring)
Examines methods, vocabularies, and theories necessary to articulate new spatial approaches to modern Asian cultural texts, including literature, films, and urban spaces. Special focus on Soja, Lefebvre, Winichakul, Henry, Ai, Zhang, and Furuhata.

AMES 5351. Chinese New Media. (3 cr. ; A-F only; Every Fall)
This course explores new media and intermediality from specific moments in the history of modern China. The new visuality of the late Qing Dynasty offers examples of how new forms of visual culture became both reflexive and constitutive of modernity. Later, silent cinema of the Republican era both drew upon and defined itself against existing Chinese dramatic forms, particularly opera. In the 1930s, the arrival of sound in cinema provided a space for phonographic modernity to be expressed through film. In the People? s Republic, the productive interplay between traditional art forms and cinema entered a new era, culminating in the cinematic adaptations of the ?model plays? of the Cultural Revolution. Finally, recent years have seen the explosive growth of digital cinema, computer animation, internet culture, and gaming communities.

AMES 5358. Realism, Revolution, and the Moving Image. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Cinema associated with socialist realism as a global, transnational phenomenon at the heart of the aesthetics of the 20th-century's communist movement. The work of revolutionary filmmakers from China, Soviet Union, North Korea, Cuba, Eastern Europe, and Africa informs our exploration of socialist realism. Formalized by Maxim Gorky and other Soviet artists, theorists, and cultural officials in the early 1930s, socialist realism would become the official literary and artistic style of Communist revolutionary movements and resulting states throughout the world. Certain consistencies of style and theme spread to various sites across histories and geographies, yet much variation also was evident and will be explored in this class. Rejecting the dismissal of socialist realism as mere propaganda, we will take seriously its theorization and its aesthetic innovations, as well as its relationships with classical Hollywood narration, melodrama, and the psychoanalytic concept of sublimation. Through an examination of socialist realism?s variations and limits, we will grapple with larger questions of modernity, authority, and the function of art in modern societies.

AMES 5359. Early Shanghai Film Culture. (3 cr. ; Student Option; Spring Even Year)
Shanghai film culture, from earliest extant films of 1920s to end of Republican Era in 1949. Influences on early Chinese film, from traditional Chinese drama to contemporary Hollywood productions. Effects of leftist politics on commercial cinema. Chinese star system, material film culture.

AMES 5374. The Monkey King and Transcultural China: Chinese Myth, Legend, and Ideology. (; 3 cr. ; Student Option No Audit; Periodic Fall & Spring)
Early Chinese myths/legends/historical narratives about the Monkey King. Cultural formations from later periods, including contemporary popular culture and Asian American literature. Construction of China/ Chinese in 20th Century seen through the Monkey as a figure of otherness and in-betweenness in relation to globalization and cross-cultural identity.

AMES 5436. Literature by 20th-Century Japanese Women in Translation. (3 cr. ; Student Option; Periodic Fall)
Literary/historical exploration of selected works by Japanese women writers in variety of genres. All literary texts read in English.

AMES 5446. Kabuki: A Pop, Queer, and Classical Theater in Japan. (3 cr. ; A-F only; Spring Odd Year)
Kabuki, an all-male theater of "song (ka)/ dance (bu)/acting (ki)" that came into being in the 17th century, still boasts popularity in Japan. This course explores kabuki in several contexts: historical, theatrical, literary, and theoretical. It aims to historicize this performing art in its four-hundred-year dynamic trajectory against the static understanding that it is a national, high culture. No less importantly, we inquire into theoretical implications of subject matter, such as citationality, gender construction, and the like. Furthermore, this course attends to what is usually marginalized and overlooked in kabuki historiography: koshibai (unlicensed small troupes of kabuki); onna yakusha (women kabuki actors who mastered the acting techniques established by male kabuki actors--including the technique of female impersonation). Open to anyone with an interest, no previous knowledge of Japanese studies, theater studies, or Japanese is required. All of the readings will be available in English. Audio-visual materials will be used whenever available and appropriate.

AMES 5486. Images of "Japan". (3 cr. ; A-F only; Fall Even Year)
This course examines non-Japanese texts that deploy the imagination of "Japan" in their narratives. Discussions will take up such focal points as: ethnographic cinema, the politics of travel and translation, the intersections of race and gender, the cultural politics of alternate histories, and the ramifications of techno-orientalist discourse.

AMES 5620. Topics in South Asian Culture. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Topics specified in Class Schedule.

AMES 5636. South Asian Women Writers. (; 3 cr. ; Student Option; Periodic Spring)
Survey of South Asian women's writing, from early years of nationalist movement to present. Contemporary writing includes works by immigrant writers. Concerns, arguments, and nuances in works of women writing in South Asia and diaspora.

AMES 5820. Topics in Arab Culture. (; 3 cr. [max 9 cr.] ; A-F only; Periodic Fall & Spring)
Topics specified in Class Schedule.

AMES 5866. Gender and Sexuality in Modern Arabic Literature. (3 cr. ; Student Option; Every Spring)
Survey of modern Arabic literature?s key role in the articulation, construction, and subversion of gendered subjectivities. Explores the construction of masculine and feminine subjectivities, as well as the blurring of the dichotomy between the two. Also explores how homoerotic desire is presented in modern Arabic novels. Engages the complex interplay between the gender politics of literary texts, and the broader historical and political contexts from which they emerge. All texts covered in this course will be in English translation, however those able to read texts in the original Arabic are encouraged to do so.

AMES 5868. Culture and Society of the Arabian Peninsula. (3 cr. ; A-F only; Periodic Fall & Spring)
This course revolves around the study of issues and cultural trends in the societies of the Arabian Peninsula, particularly Saudi Arabia, Qatar, the United Arab Emirates, Kuwait, and Bahrain. After an introduction on the historical development of these states, topics we cover include nation-building and heritage construction; the meaning of tribalism and "Bedouinness" today; social stratification and sectarianism; issues of gender; labor and migration; and local production of literature, poetry and film. In the last four weeks of the semester, we will read three novels composed by local authors. This course is taught in English. Meets with ALL 3868.

AMES 5920. Topics in Asian Culture. (; 3 cr. [max 12 cr.] ; A-F only; Every Fall)
Topics specified in Class Schedule.

AMES 5993. Directed Study. (1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Individual reading/study, with guidance of a faculty member, on topics not covered in regular courses. Prereq-instr consent, dept consent, college consent.

Asian American Studies (AAS)

AAS 1101. Imagining Asian America. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall)
Issues in Asian American Studies. Historical/ recent aspects of the diverse/multifaceted vision of "Asian America," using histories, films, memoirs, and other texts as illustrations.

AAS 1201. Racial Formation and Transformation in the United States. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall)
How aggrieved racialized groups struggle over identity, culture, place, and meaning. Histories of racialization. Strategies toward rectification of historical injustices from dispossession, slavery, exploitation, and exclusion.

AAS 3001. Contemporary Perspectives on Asian America. (DSJ; 3 cr. ; Student Option; Every Fall)
Interdisciplinary overview of Asian American identities. Post-1965 migration/community. History, cultural productions, and concerns of Americans of Chinese, Japanese, Korean, South Asian, Filipino, and Southeast Asian ancestry.

AAS 3211W. Race & Racism in the U.S.. (DSJ,WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
We live in a society steeped in racial understandings that are often invisible?some that are hard to see, and others that we work hard not to see. This course will focus on race relations in today's society with a historical overview of the experiences of various racial and ethnic groups in order to help explain their present-day social status. This course is designed to help students begin to develop their own informed perspectives on American racial ?problems? by introducing them to the ways that sociologists deal with race, ethnicity, race relations and racism. We will expand our understanding of racial and ethnic dynamics by exploring the experiences of specific groups in the U.S. and how race/ethnicity intersects with sources of stratification such as class, nationality, and gender. The course will conclude by re-considering ideas about assimilation, pluralism, and multiculturalism. Throughout, our goal will be to consider race both as a source of identity and social differentiation as well as a system of privilege, power and inequality affecting everyone in the society albeit in different ways.

AAS 3251W. Sociological Perspectives on Race, Class, and Gender. (DSJ,WI,SOCS; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
In the midst of social unrest, it is important for us to understand social inequality. In this course we will analyze the impact of three major forms of inequality in the United States: race, class, and gender. Through taking an intersectional approach at these topics, we will examine the ways these social forces work institutionally, conceptually, and in terms of our everyday realities. We will focus on these inequalities as intertwined and deeply embedded in the history of the country. Along with race, class, and gender we will focus on other axes of inequality including sexuality, citizenship, and dis/ability. We will analyze the meanings and values attached to these social categories, and the ways in which these social constructions help rationalize, justify, and reproduce social inequality.

AAS 3271. Learning in the Asian American Community. (; 3 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
This course is intended to give students a general introduction to participatory learning through engagement with Asian American community organizations and/or leaders. The course is based within Asian American studies, an interdisciplinary field of inquiry that examines how histories of immigration, exclusion, racialization, and citizenship have shaped Asian American communities and identities. In turn, Asian American studies asks how Asian Americans, configured as immigrants, refugees, "forever foreigners," and "model minorities," impact how American nation, empire, rights, and belonging are constructed. Working with community partners, students will have the opportunity to learn several different community-based research skills: newspaper article search, archival research and/or archival organization, interviewing skills, and audio/video production. Students also have the option to complete service learning with an organization throughout the semester; with this option, students will write a short reflection statement on their service learning as their final project. prereq: AAS and CRES minors must register A-F.

AAS 3301. Asian America Through Arts and Culture. (AH,DSJ; 3 cr. ; Student Option; Spring Even Year)
The course focuses on the close analysis and interpretation of individual works by a range of modern and contemporary artists. Students will analyze, critique, and interpret these works in light of the historical and social contexts in which they were produced, their creation and uses of aesthetic form, and their impact on individuals and communities. Discussion, writing assignments, and oral presentations will focus on different ways of encountering and evaluating artistic work; for instance, students will write critical analyses and production reviews as well as dialogue more informally through weekly journal entries and online discussion forums. We will examine what it means to define artists and their work as being "Asian American" and explore how other categories of identity such as gender, sexuality, or class intersect with race. We will study how art works not only as individual creativity but also as communal and social practice; for instance, we look at the history of theaters, such as East-West Players or Pan Asian Repertory Theatre, that have sustained Asian Americans as actors, playwrights, and designers.

AAS 3303W. Writing Differences: Literature by U.S. Women of Color. (DSJ,WI,LITR; 3 cr. ; Student Option; Fall Odd Year)
Interpret/analyze poetry, fiction, drama of U.S. women minority writers. Relationship of writer's history, ethnicity, race, class, gender to her writings.

AAS 3311. Asian American Theater. (3 cr. ; Student Option; Periodic Fall & Spring)
Through submerging students in both theater history and practice, this class brings students closer to the history, experiences, and politics of Asian Americans. Why are Asian American stories needed and how do we tell them? What are the artistic and social agendas driving the making of Asian American theater? How have the styles of performance shifted? While we will be actively working on readings and original theater projects, you don't need to be a theater expert to enjoy this class. Topics will include reading plays by Frank Chin, David Henry Hwang, Wakako Yamauchi, Naomi Iizuka, and others; looking at the history of Asian American theater companies; discussing creative approaches to casting, acting, directing, and design; and building collaborations among companies, audiences, and communities.

AAS 3341. Asian American Images. (AH,DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
From 19th-century anti-Chinese political cartoons to Harold and Kumar, visual representations of Asians in the United States have long influenced how Asian Americans are seen and treated. What are some of the ways that photography, graphic arts, and digital culture have pictured Asian Americans as aliens, citizens, immigrants, workers, family and community members, entertainers, and artists? Course topics will relate visual images to particular historical moments, including the early exclusion period and the "yellow peril" stereotype; WWII Japanese American incarceration and the drawings of Min? Okubo, and photo-journalism documenting U.S. military involvement in Southeast Asia and its aftermath. How do photographic and other images work to counter historical amnesia, heal traumatic loss, and document social injustice? Other weeks of the class will explore the ways that individuals, families, and communities use photographs, video, and other visual media to preserve a sense of connection and belonging. We will also look at how contemporary Asian American photographers such as Tseng Kwong Chi, Nikki Lee, and Wing Young Huie experiment with visual images to raise questions of racial and national identity, social inequality, gender, sexuality, and political agency. The course also includes a digital storytelling project that encourages students to create video images and sound reflecting Asian American immigration stories from local communities.

AAS 3351. Asian Americans and Popular Culture. (AH,DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
Over the past few decades, Asian Americans have become increasingly visible both as the subjects and producers of popular culture in the United States. This course will explore how this new recognition of Asian Americans in popular literature, cinema, television, and entertainment is related both to longer histories of Asian immigration and racial exclusion and to post-1960s efforts to forward racial awareness, community activism, and social justice. Our first unit will look at how particular stereotypes such as the yellow peril or the wartime enemy encouraged anti-Asian feeling and violence and legal restrictions on immigration and naturalization. We will then examine how throughout history, Asian immigrants and their descendants used song, dance, theater, writing, and other forms of popular culture to express personal desires and foster collective ties. Our final unit concentrates on contemporary popular culture and its relationship to the changing identities of Asian Americans. How do Asian Americans influence the current essays, films, and videos that are consumed by millions today? How are increasingly pan-ethnic, interracial, multiracial, transnational, and global experiences reflected in popular culture?

AAS 3361. Asian Americans and Food. (3 cr. ; Student Option; Periodic Fall)
Asian Americans have always been intimately connected to food practices and institutions in the American imagination. Food is the medium through which Asian American cultural difference--including their status as "perpetual foreigners" or their "model minority character"--are typically expressed and disseminated. Historically, Asian migration to the United States was fueled by labor needs particularly in the agricultural sector. In addition, Asian labor has been stereotypically linked to food service and preparation such as the ubiquitous Chinese take-out place and more recently, the sushi and Korean fusion joints. This course is an introduction to the interdisciplinary study of food to better understand the historical, social, and cultural aspects of Asian American food preparation, distribution and consumption. Students will investigate the politics and poetics of Asian American foodways by examining social habits, and rituals around food in restaurants, homes and other public venues. The course texts include ethnographic essays, fictional works, memoirs, magazines, and television shows.

AAS 3409W. Asian American Women's Cultural Production. (AH,WI,DSJ; 3 cr. ; Student Option; Every Fall)
Diversity of cultures designated "Asian American." Understanding women's lives in historical, cultural, economic, and racial contexts.

AAS 3483. Hmong History Across the Globe. (; 3 cr. ; Student Option; Fall Odd, Spring Even Year)

Hmong interaction with lowland Southeast Asian states (Laos, Vietnam) and Western colonial powers (French, American) since 19th century. Changes to religious, social, political, and gender institutions. Aspirations for political autonomy.

AAS 3486. Hmong Refugees from the Secret War: Becoming Americans. (3 cr. ; Student Option; Spring Odd Year)
Socio-economic, political, gender, cultural/ religious changes in Hmong American community during last three decades. How Hmong are racialized in American society. Impact to first/second generations.

AAS 3503. Asian American Identities, Families, & Communities. (SOCS,DSJ; 3 cr. ; A-F or Audit; Periodic Spring)
This course provides a sociological overview of Asian American identities, families and communities. To place these experiences within a broader historical, structural, and cultural context the course will begin with a brief introduction to the history of Asians and Asian Americans in the United States and sociological theories about incorporation and racial stratification. We will then examine the diversity of Asian American communities and families, highlighting ethnic, gender, and class variations. Other topics of focus include racialization and discrimination, education, ethnic enclaves, family and intergenerational relationships, identity, media, culture, and politics and social action. Throughout the course we will consider the ways in which society affects individuals, and how in turn, individuals affect society. Students will have an option to do community-engaged learning or another course project.

AAS 3601W. War and Empire: Asian American Perspectives. (GP,WI; 3 cr. ; Student Option; Periodic Spring)
This course examines the reach of war and empire in Asian America since the turn of the twentieth century. Starting with US wars in the Philippines (1898-1910) and the formation of the colonial state, the course will track the ascendancy of US empire in Asia and paths toward wars against imperialist Japan (1941-1945), in Korea (1950-53), and in Vietnam (1955-1975). The course will address the relevance of the unending Global War on Terrorism (2001-) in contemporary Asian America. Together, the course explores how these wars have shaped and continue to inform the lives and memories of Asian immigrants and refugees, their children, and other Asian Americans.

AAS 3862. American Immigration History. (DSJ,HIS; 3 cr. ; A-F or Audit; Every Spring)
Global migrations to U.S. from Europe, Asia, Latin America, and Africa, from early 19th century to present. Causes/cultures of migration. Migrant communities, work, and families. Xenophobia, assimilation/integration, citizenship, ethnicity, race relations. Debates over immigration. Place of immigration in America's national identity.

AAS 3866. Arab American Experiences. (3 cr. ; A-F only; Every Fall)
Arab diasporic experiences in the West, and in America in particular, have been mediated by popular depictions of "the Arab" as violent terrorist, oppressor of/oppressed woman, religious fanatic, and myriad other negative stereotypes, heightened since September 11, 2001. How do Arabs in America, especially youth, navigate the superimposition of these images upon them? How do they relate to the multiple locations of "home" between the West and the Arab world? To what extent are they perpetually "out of place," and what strategies have they developed to navigate their liminal and often marginalized social position? Through the examination of memoirs, novels, film, music, and even food, this course will use Arab American cultural production as a lens through which to explore these questions.

AAS 3875W. Comparative Race and Ethnicity in U.S. History. (DSJ,WI,HIS; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This writing-intensive course examines the racial history of modern America. The focus is placed on how American Indians, African Americans, and immigrants from Europe, Asia, and Latin America struggle over identity, place, and meanings of these categories in society where racial hierarchy not only determined every aspect of how they lived, but also functioned as a lever to reconstitute a new nation and empire in the aftermath of the Civil War. We are interested in studying how these diverse groups experienced racialization not in the same way but in various and distinct ways in relation to each other.

AAS 3877. Asian American History, 1850 to Present. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Asian American history and contemporary issues, from 1850 to present. Immigration, labor, anti-Asian movements, women/families, impact of World War Two, new immigrant/ refugee communities, civil rights, Asian American identity/culture.

AAS 3920. Topics in Asian American Studies. (; 2-4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

AAS 3993. Directed Studies in Asian American Studies. (; 1-9 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

AAS 4231. Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S.. (3 cr. ; Student Option; Periodic Fall)
Structural or institutional conditions through which people of color have been marginalized in public policy. Critical evaluation of social theory in addressing the problem of contemporary communities of color in the United States.

AAS 4232. American Drama by Writers of Color. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Selected works by Asian American, African American, American Indian, Latino, and Chicano playwrights. How racial/ethnic differences are integral to shaping different visions of American drama. History of minority/ethnic theaters, politics of casting, mainstreaming of the minority playwright.

AAS 4311. Asian American Literature and Drama. (DSJ,LITR; 3 cr. ; A-F or Audit; Fall Odd Year)
Literary/dramatic works by Asian American writers. Historical past of Asian America through perspective of writers such as Sui Sin Far and Carlos Bulosan. Contemporary artists such as Frank Chin, Maxine Hong Kingston, David Henry Hwang, and Han Ong. Political/ historical background of Asian American artists, their aesthetic choices.

AAS 5920. Topics in Asian American Studies. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

AAS 5993. Directed Readings. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall)
Directed reading--must be set up with individual instructor.

AAS 5996. Graduate Proseminar. (; 1 cr. [max 4 cr.] ; S-N only; Every Fall & Spring)
Discussions/presentations from various disciplinary perspectives on research, activism, and performance in Asian American/Diasporic Studies. Students engage in dialogue, observe models of scholarly engagement, and reflect on issues within Asian American/diasporic studies.

Astronomy (AST)

AST 1001. Exploring the Universe. (ENV,PHYS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
The human place in the Universe. Study of Earth, other planets, sun, stars, galaxies. Background and fragility of life on Earth. Scale, origin, history of universe and our relationship to it.

AST 1005. Descriptive Astronomy. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Twentieth century astrophysics, current frontiers of astrophysical research. prereq: non-science major

AST 1011H. Exploring the Universe, Honors. (ENV,PHYS; 4 cr. ; A-F only; Every Fall & Spring)
Human place in universe. Earth, other planets, sun, stars, galaxies. Background/fragility of life on Earth. Scale, origin, history of universe, our relationship to it. Honors version of 1001. prereq: High school trigonometry, [high school physics or chemistry]

AST 1905. Freshman Seminar. (; 2 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Spring)
Topics vary. See Class Schedule.

AST 2001. Introduction to Astrophysics. (; 4 cr. ; Student Option; Every Fall & Spring)
Physical principles and study of solar system, stars, galaxy, and universe. How observations/ conclusions are made. prereq: [One yr calculus, PHYS 1302] or instr consent

AST 2990. Directed Studies. (1-5 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Independent, directed study in observational and theoretical astrophysics. Arranged with faculty member. prereq: 1 yr calculus, Phys 1302, instr consent

AST 4001. Astrophysics I. (; 4 cr. ; A-F or Audit; Periodic Fall)
Astrophysics of stars and stellar populations. Stellar formation, evolution, interiors/ atmospheres. Stellar populations, galactic distribution of stars. prereq: 2001, Phys 2601

AST 4002. Astrophysics II. (; 4 cr. ; A-F or Audit; Periodic Fall)
Astrophysics of galaxies and the universe. Diffuse matter, galactic structure, and evolution. Clusters of galaxies. Introductory cosmology, evolution of the universe. prereq: 2001, Phys 2601

AST 4031. Interpretation and Analysis of Astrophysical Data. (4 cr. ; A-F only; Every Spring)
Introduction to analysis techniques with applications to modern astrophysics. Methods to interpret/analyze large data sets from experiments. Principles/methods of analysis, with applications to current research. For senior undergraduate/graduate students in Physics/ Astronomy. prereq: [Math 2243 or 2373 or equivalent[, [Math 2263 or 2374 or equivalent], Ast 2001 or instr consent

AST 4041. Computational Methods in the Physical Sciences. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Introduction to using computer programs to solve problems in physical sciences. Selected numerical methods, mapping problems onto computational algorithms. Arranged lab. prereq: Upper div or grad student or instr consent

AST 4299H. Senior Honors Astrophysics Research Seminar. (; 1 cr. ; Student Option; Every Fall & Spring)
Based on department's research seminar. prereq: upper div honors student in IT or CLA, inst consent

AST 4990. Directed Studies. (1-5 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Independent, directed study in observational and theoretical astrophysics. Arranged with faculty member. prereq: 2001, instr consent

AST 4994W. Directed Research. (WI; 2-5 cr. ; A-F only; Every Fall & Spring)
Independent research in observational or theoretical astrophysics. Senior Thesis for undergraduate astrophysics majors. Arranged with faculty member.

AST 5012. The Interstellar Medium. (; 4 cr. ; Student Option; Periodic Fall)
Survey of physical processes in the interstellar medium. Dynamic processes, excitation processes, emission and absorption by gas and dust. Hot bubbles, HII regions, molecular clouds. prereq: 2001, Phys 2601 or instr consent

AST 5022. Relativity, Cosmology, and the Universe. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Large-scale structure/history of universe. Introduction to Newtonian/relativistic world models. Physics of early universe, cosmological tests, formation of galaxies. prereq: [2001, Phys 2601] or instr consent

AST 5031. Interpretation and Analysis of Astrophysical Data. (4 cr. ; A-F only; Every Spring)
Introduction to analysis techniques with applications to modern astrophysics. Methods to interpret/analyze large data sets from experiments. Principles/methods of analysis, with applications to current research. For graduate students in Physics/Astronomy

AST 5201. Methods of Experimental Astrophysics. (; 4 cr. ; Student Option; Spring Even Year)
Contemporary astronomical techniques and instrumentation. Emphasizes data reduction and analysis, including image processing. Students make astronomical observations at O'Brien Observatory and use department's computing facilities for data analysis. Image processing packages include IRAF, AIPS, IDL, MIRA. prereq: Upper div CSE or grad or instr consent

AST 5731. Bayesian Astrostatistics. (4 cr. ; A-F only; Every Fall)
This course will introduce Bayesian methods for interpreting and analyzing large data sets from astrophysical experiments. These methods will be demonstrated using astrophysics real-world data sets and a focus on modern statistical software, such as R and python. Prerequisites: MATH 2263 and MATH 2243, or equivalent; or instructor consent Suggested: statistical course at the level of AST 4031, AST 5031, STAT 3021, or STAT 5021

Biochemistry (BIOC)

BIOC 1010. Human Health and Disease. (; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to molecular basis of common human diseases. Human genome, cellular/ molecular biology, biochemical reactions, organ relationships, whole body physiology. Inherited Diseases, metabolic diseases. Aging. Methods to diagnose, treat, and prevent disease. Gene therapy, regenerative medicine, drug-based interventions.

BIOC 2011. Biochemistry for the Agricultural and Health Sciences. (3 cr. ; Student Option; Every Fall & Spring)
Survey of organic chemistry and biochemistry outlining structure and metabolism of biomolecules, metabolic regulation, principles of molecular biology. prereq: Chem 1015, Bio 1009

BIOC 3021. Biochemistry. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Fundamentals of biochemistry. Structure/ function of nucleic acids, proteins, lipids, carbohydrates. Enzymes. Metabolism. DNA replication and repair, transcription, protein synthesis. Recommended prerequisites: Introductory biology (BIOL 1009 or BIOL 2003 or equivalent), organic chemistry (CHEM 2301 or CHEM 2081/2085 or equivalent). Note: CBS students should take BIOC 3022 not 3021.

BIOC 3022. Biochemistry for Life Scientists. (3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
This course provides an introduction to biochemistry including discussion of the structure and functions of biomolecules (proteins, carbohydrates, lipids, and nucleic acids), central metabolic pathways, and the mechanisms of enzyme action. This course is intended for students in the College of Biological Sciences. Students from other colleges should register for BIOC 3021. prereq: CHEM 2301 or CHEM 2081/2085 or equivalent

BIOC 4025W. Laboratory in Biochemistry. (WI; 2 cr. ; Student Option; Every Fall & Spring)
Theory, principles, and use of fundamental techniques in modern biochemistry labs. prereq: 3021, 3022, or 4331 or equiv

BIOC 4125. Laboratory in Molecular Biology and Biotechnology. (; 3 cr. ; A-F or Audit; Every Spring & Summer)
Basic recombinant DNA techniques: methods for growing, isolating, and purifying recombinant DNA and cloning vectors, DNA sequencing and sequence analysis, gene expression, Polymerase Chain Reaction (PCR), other current techniques. prereq: [3021 or Biol 3021 or or Biol 4003], [4025 or GCD 4015 or GCD 4025 or MicB 3301]

BIOC 4185. Laboratory in Molecular Genetics. (; 3 cr. ; A-F or Audit; Every Summer)
Basic recombinant DNA techniques. Methods for growing, isolating, and purifying recombinant DNA and cloning vectors. DNA sequencing, sequence analysis. Gene expression, Polymerase Chain Reaction (PCR). Current techniques. prereq: Enrollment in Life Sciences Summer Undergraduate Research Program

BIOC 4225. Laboratory in NMR Techniques. (; 1 cr. ; S-N only; Every Summer)
Practical aspects of nuclear magnetic resonance (NMR) spectrometry. Hands-on experience with 500/600 MHz instruments. Sample preparation/handling, contamination sources, tube/probe options, experiment selection, experimental procedures, software, data processing. prereq: 4331; 4521 recommended; intended for biochemistry majors

BIOC 4325. Laboratory in Mass Spectrometry. (; 1 cr. ; S-N only; Every Spring)
Hands-on experience with techniques/ instruments. Sample preparation/handling, 2-dimenstioal gels, MS-MS, MALDI-TOF, electrospray/LC-MS, experiment selection/ procedures, software, data processing. prereq: 4332, 4521

BIOC 4331. Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems. (; 4 cr. ; Student Option; Every Fall & Spring)
Advanced survey of structure/catalysis, metabolism/bioenergetics. prereq: (BIOL 1009

or 2003 or equiv) AND (Chem 2302 or CHEM 2081/2085 or equiv)

BIOC 4332. Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression. (; 4 cr. ; Student Option; Every Fall & Spring)
Advanced survey of molecular biology. Mechanisms of gene action/biological regulation. prereq: BioC 4331 or Bioc 3201 or BioC 3022

BIOC 4351. Protein Engineering. (3 cr. ; A-F only; Every Fall)
Key properties of enzymes/molecular basis, computer modeling strategies, mutagenesis strategies to create protein variants, expression/screening of protein variants. Evaluate research papers, identify unsolved practical/theoretical problems, plan protein engineering experiment. prereq: 4331 or instr consent

BIOC 4521. Introduction to Physical Biochemistry. (3 cr. ; Student Option; Every Fall & Spring)
Physical chemical principles, their applications in biochemistry. Thermodynamics, kinetics, spectroscopy, solution dynamics as applied to biochemical reactions/ biopolymers. prereq: 4331 recommended, (Chem 1062/1066 or CHEM 1082/1086) AND (Physics 1202 or 1302)

BIOC 4793W. Directed Studies: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. One main feature of this course is that the student will receive writing instruction and the written output of the course will be revised during the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOC 4794W. Directed Research: Writing Intensive. (WI; 1-7 cr. [max 42 cr.] ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOC 4993. Directed Studies. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOC 4994. Directed Research. (; 1-7 cr. [max 42 cr.] ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a Research/Directed Studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOC 5002. Critical Evaluation of Biochemistry Research. (1 cr. ; S-N only; Every Fall & Spring)
BioC 5002 guides advanced undergraduates and new graduate students as they learn how to design experiments and to critically evaluate a wide variety of cutting-edge research projects, both as readers and as researchers. Introductory lectures include peer review, experimental design, critical thinking and the psychology of judgment and decision-making. This is followed by a series of guest speakers who will guide students as they develop their skills in evaluation of current research papers.

BIOC 5213. Selected Topics in Molecular Biology. (; 3 cr. ; A-F only; Every Fall)
Cutting edge areas in molecular biology. Topics focus on the "3 R's" of DNA: repair, replication, and recombination. Faculty who are experts in these areas teach modules on specific topics, including discussion of their research interests. prereq: 4332 or 8002 or [3021, BIOL 4003] or instr consent

BIOC 5216. Current Topics in Signal Transduction. (; 2 cr. ; A-F only; Every Spring)
Mechanisms by which biological signals evoke biochemical responses.

BIOC 5225. Graduate Laboratory in NMR Techniques. (; 1 cr. ; S-N only; Every Spring)
Practical aspects of nuclear magnetic resonance (NMR) spectrometry. Hands-on experience with 500/600 MHz instruments. Sample preparation/handling, contamination sources, tube/probe options, experiment selection, experimental procedures, software, data processing. prereq: 8001 or instr consent

BIOC 5309. Biocatalysis and Biodegradation. (3 cr. ; Student Option; Every Spring)
Fundamentals of microbial enzymes/ metabolism as pertaining to biodegradation of environmental pollutants/biosynthesis for making commodity chemicals. Practical examples. Guest speakers from industry.

BIOC 5351. Protein Engineering. (3 cr. ; Audit; Every Fall)
Key properties of enzymes/molecular basis, computer modeling strategies, mutagenesis strategies to create protein variants, expression/screening of protein variants. Evaluate research papers, identify unsolved practical/theoretical problems, plan protein engineering experiment.

BIOC 5352. Biotechnology and Bioengineering for Biochemists. (; 3 cr. ; A-F or Audit; Periodic Spring)
Protein biotechnology. Microorganisms used as hosts for protein expression, protein expression, and engineering methods. Production of enzymes of industrial interest. Applications of protein biotechnology in bioelectronics. Formulation of therapeutic biopharmaceuticals. prereq: [[3021 or 4331 or BIOL 3021 or or MICB 4111], [BIOL 3301 or MICB 3301]] or instr consent

BIOC 5361. Microbial Genomics and Bioinformatics. (; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to genomics. Emphasizes microbial genomics. Sequencing methods, sequence analysis, genomics databases, genome mapping, prokaryotic horizontal gene transfer, genomics in biotechnology, intellectual property issues. Hands-on introduction to UNIX shell scripting, genomic data analysis using R and Excel in a computer lab setting. prereq: College-level courses in [organic chemistry, biochemistry, microbiology]

BIOC 5444. Muscle. (; 3 cr. ; Student Option; Every Spring)
Muscle molecular structure/function and disease. Muscle regulation, ion transport, and force generation. Muscular dystrophy and heart disease. prereq: 3021 or BIOL 3021 or 4331 or BIOL 4331 or PHSL 3061 or instr consent

BIOC 5527. Introduction to Modern Structural Biology. (; 4 cr. ; Student Option; Every Fall)
Methods employed in modern structural biology to elucidate macromolecular structures. Primary focus on X-ray diffraction, nuclear magnetic resonance (NMR) spectroscopy and mass spectrometry. Principles underlying structural biology and structure/function relationships. prereq: [intro biochemistry, intro physics] or physical chemistry or instr consent

BIOC 5528. Spectroscopy and Kinetics. (; 4 cr. ; Student Option; Every Spring)
Biochemical dynamics from perspectives of kinetics and spectroscopy. Influence of structure, molecular interactions, and chemical transformations on biochemical reactions. Focuses on computational, spectroscopic, and physical methods. Steady-state and transient kinetics. Optical and magnetic resonance spectroscopies. prereq: Intro physical chemistry or equiv; intro biochemistry recommended

BIOC 5535. Introduction to Modern Structural Biology -- Diffraction. (2 cr. ; A-F or Audit; Every Fall)
Theory and practice in the determination of three-dimensional structures of macromolecules using x-ray and neutron diffraction and electron microscopy. prereq: (Introductory biochemistry, introductory physics, college calculus] or physical chemistry or instr consent

BIOC 5536. Introduction to Modern Structural Biology - Nuclear Magnetic Resonance. (2 cr. ; Student Option; Every Fall)
Theory and practice in the determination of three-dimensional structures of macromolecules using NMR. prereq: [Introductory biochemistry, introductory physics, college calculus] or physical chemistry or instr consent

BIOC 5960. Special Topics in Biochemistry. (; 3 cr. ; A-F only; Every Spring)
In-depth study of topics in biochemistry. prereq: [[3021 or equiv], CHEM 2301]] or instr consent

Bioethics, Center for (BTHX)

BTHX 5000. Topics in Bioethics. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
Bioethics topics of contemporary interest. Topics specified in Class Schedule.

BTHX 5010. Bioethics Proseminar. (; 2 cr. ; A-F only; Every Fall)
Introduction to topics in bioethics. prereq: Bioethics grad student or grad minor

BTHX 5100. Introduction to Clinical Ethics. (; 3 cr. ; Student Option; Every Fall & Spring)
Most frequent ethical problems faced by clinicians, patients/families, and ethics consultants. Forgoing life sustaining treatment, decisional capacity, informed consent, treatment refusals, death/dying, pediatric ethics, reproductive issues, research ethics, psychiatric illness. Real cases.

BTHX 5110. Ethical Issues in Pediatrics. (2 cr. ; Student Option; Every Spring)
Bioethics concerns the identification, analysis, and resolution of ethical problems that arise in planning for the care of patients in biomedical research, and in relation to the natural world. This course deals with ethical problems that occur frequently in pediatrics settings, in clinical and public health venues, in research and in the environment. The course emphasizes the ethical responsibilities of laypersons, health professionals, researchers and policy makers in planning for and resolving bioethics issues in pediatrics, including the prenatal and perinatal period. Issues addressed include reproductive issues, death and dying, forgoing life-sustaining treatment, conflicts and war, research with children and pregnant women, genetics, public and global health, social justice and other topics.

BTHX 5120. Dying in Contemporary Medical Culture. (2 cr. ; Student Option; Every Fall)
Examines practices of dying and death in contemporary U.S. culture, moral problems associated with these practices, possible solutions, and practical applications. Readings will consist of cultural critiques, bioethics literature, and empirical research.

BTHX 5210. Ethics of Human Subjects Research. (; 3 cr. ; Student Option; Fall Even Year)
Issues in ethics of human subjects research. prereq: Grad student or instr consent

BTHX 5220. Standards for Research with Human Participants: A Lecture Series for Researchers. (1 cr. ; Student Option; Fall Even Year)
This series of lectures presents various legal and regulatory standards that apply to research using human participants. Some are of general interest (e.g., Informed Consent); others will interest more specialized researchers (e.g., International Research).

BTHX 5300. Foundations of Bioethics. (3 cr. ; Student Option; Every Spring)
Overview of major contemporary frameworks used to approach ethical issues in bioethics. prereq: Grad student or instr consent

BTHX 5325. Biomedical Ethics. (; 3 cr. ; Student Option; Every Fall & Spring)
Major topics/issues in biomedical ethics. Patients' rights/duties, informed consent, confidentiality, ethical issues in medical research, initiation/termination of medical treatment, euthanasia, abortion, allocation of medical resources. prereq: Jr or sr or grad student or instr consent

BTHX 5400. Intro Ethics in Hlth Policy. (3 cr. ; Student Option; Spring Even Year)
Topics vary to reflect issues of current significance. Relates to law/politics as appropriate but focuses on moral analyses of policy issues. prereq: Grad student or professional student or instr consent

BTHX 5411. Health Law and Policy. (; 3 cr. ; A-F or Audit; Spring Even Year)
Organization of health care delivery. Physician-patient relationship. informed consent. Quality control. Responses to harm and error, including through medical malpractice litigation. Access. Proposals for reform. prereq: Grad student or instr consent

BTHX 5453. Law, Biomedicine, and Bioethics. (; 3 cr. ; A-F only; Spring Even Year)
Law/bioethics as means of controlling important biomedical developments. Relationship of law and bioethics. Role of law/bioethics in governing biomedical research, reproductive decisionmaking, assisted reproduction, genetic testing/screening, genetic manipulation, and cloning. Definition of death. Use of life-sustaining treatment. Organ transplantation. prereq: Grad student or instr consent

BTHX 5510. Gender and the Politics of Health. (3 cr. ; Student Option; Periodic Fall & Spring)
Significance of gender to health and health care. Feminist analysis regarding moral/ political importance of gender, possibly including contemporary western medicine? s understanding of the body, childbirth, and reproductive technologies; cosmetic surgery; chronic illness; disability; participation in research; gender and classification of disease. Care work, paid/non-paid. Readings from feminist theory, history, social science, bioethics, and moral philosophy.

BTHX 5520. Social Justice and Bioethics. (3 cr. ; Student Option; Fall Even Year)
This course explores matters of social justice related to health. Readings from multiple disciplinary perspectives ground examination of how to understand social justice in this context. Class sessions will predominantly focus on specific practical issues such as

health disparities, the politics of inclusion and exclusion in clinical research, resource allocation in resource poor settings, and health professional roles during war. Discussions incorporate consideration of these issues? institutional and broader social contexts. This course is appropriate for a wide audience including students from the health professions, philosophy, social science, and law.

BTHX 5530. Investigative Journalism and Bioethics. (3 cr. ; Student Option; Periodic Fall & Spring)
This seminar will explore the links between bioethics and journalism, examining classic and contemporary works of investigative health journalism, works of literary non-fiction related to medicine and health, and investigative work by bioethicists. It will also examine the art of muckraking, non-profit investigative journalism, the public relations industry, the decline of print journalism and the rise of digital media, and how these developments are shaping the relationship between bioethicists and the press.

BTHX 5540. Bioethics, Psychiatry & Psychology. (3 cr. ; A-F only; Periodic Fall & Spring)
Explore philosophical and ethical issues in psychiatry and psychology. Potential topics include the moral responsibility of psychopaths for their actions, false memories of Satanic ritual abuse, insanity pleas, the sociology of institutionalization, clinical trials of psychiatric drugs, cosmetic psychopharmacology, recent work in experimental philosophy, and classic experiments in social psychology.

BTHX 5610. Research & Publication Seminar. (1 cr. ; A-F only; Every Fall)
Publication strategy/venues. Authorship issues/ethics in publication. Manuscript formatting/letters of submission. Peer review. prereq: [Junior or senior or grad student], bioethics grad majors must register A-F

BTHX 5620. Social Context of Health and Illness. (; 3 cr. ; Student Option; Spring Even Year)
Social context in which contemporary meanings of health and illness are understood by providers/patients. Ethical implications. Readings from history, social science, literature, and first-person accounts. prereq: Grad student or instr consent

BTHX 5630. Bioethics Colloqium. (1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
This course features presentations from a variety of departments and programs across campus that deal in some way with ethics as a theoretical and/or applied concept. Students will attend these presentations; engage with scholars thinking about ethics from multiple perspectives; and be able to bring these perspectives to bear upon their own research. The course is thus an opportunity to explore ethics as it might be conceptualized or practiced in the social sciences, law, public policy, global health, and many other arenas, and in turn to think about how these disparate frameworks and practices can be usefully put into conversation with bioethics, and with their own projects.

BTHX 5650. Disability Ethics. (3 cr. ; A-F only; Spring Odd Year)
This course is an examination of ethical issues pertaining to disability, with an emphasis on discussion and consideration of widely contrasting perspectives. Issues discussed include physician-assisted suicide, euthanasia, selective abortion, cochlear implant technology, sterilization, special versus inclusive education, Universal Design/Universal Instructional Design, disability accommodations, and built and social environments, examined within social, legal, policy, and cultural environments. Assignments include, readings, viewings, journaling, field projects, and research papers.

BTHX 5710. Ethical Issues in Global Health. (3 cr. ; Student Option; Fall Even Year)
This course examines ethical issues related to global health. Topics may include religion, morality, public policy, and the connection between health and human rights. Open to juniors, seniors, graduate and professional students.

BTHX 5800. Animal Ethics. (3 cr. ; Student Option; Periodic Fall & Spring)
Human relationships with animals are changing and this course offers a venue for exploring some of the ethical issues in these evolving relationships. The course will discuss the differences between animal ethics and animal welfare and examine the morality and ethics of human-animal interactions in various contexts. These include cultural and historical views of animals; animals as companions; the use of animals in scientific research, entertainment, and service work; euthanasia; animal production and sustainability; and conservation issues.

BTHX 5900. Independent Study in Bioethics. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Students propose area for study with faculty guidance, write proposal which includes outcome objectives and work plan. Faculty member directs student's work and evaluates project. prereq: instr consent

Biology (BIOL)

BIOL 1001. Introductory Biology: Evolutionary and Ecological Perspectives. (BIOL; 4 cr. ; Student Option; Every Fall & Spring)
A one-semester exploration of the genetic, evolutionary, and ecological processes that govern biological diversity from populations to ecosystems. We explore how these processes influence human evolution, health, population growth, and conservation. We also consider how the scientific method informs our understanding of biological processes. Lab. This course is oriented towards non-majors and does not fulfill prerequisites for allied health grad programs.

BIOL 1001H. Introductory Biology I: Evolutionary and Ecological Perspectives. (BIOL; 4 cr. ; A-F only; Every Fall)
A one-semester exploration of the genetic, evolutionary, and ecological processes that govern biological diversity from populations to ecosystems. We explore how these processes influence human evolution, health, population growth, and conservation. We also consider how the scientific method informs our understanding of biological processes. Lab. This course is oriented towards non-majors and does not fulfill prerequisites for allied health grad programs.

BIOL 1003. Evolution and Biology of Sex. (BIOL; 4 cr. ; Student Option; Every Fall & Spring)
This course is designed as a one-semester exploration of biology from the standpoint of the evolution and biology of sex. It emphasizes scientific processes, evolution, sexual behavior, reproductive biology, and diversity with respect to sexual orientation, reproductive strategies, and gender identity. Lab activities complement these topics. This course does not fulfill prerequisites for allied health grad programs.

BIOL 1009. General Biology. (BIOL; 4 cr. ; Student Option; Every Fall, Spring & Summer)
A comprehensive introduction to biology - includes molecular structure of living things, cell processes, energy utilization, genetic information and inheritance, mechanisms of evolution, biological diversity, and ecology. Includes lab. This comprehensive course serves as a prerequisite and requirement in many majors.

BIOL 1009H. Honors: General Biology. (BIOL; 4 cr. ; A-F only; Every Spring)
A comprehensive introduction to biology - includes molecular structure of living things, cell processes, energy utilization, genetic information and inheritance, mechanisms of evolution, biological diversity, and ecology. Includes lab. This comprehensive course serves as a prerequisite and requirement in many majors.

BIOL 1012. Human Biology: Concepts and Current Ethical Issues. (BIOL,CIV; 4 cr. ; Student Option; Every Fall & Spring)
One-semester exploration of human anatomy, physiology and medical ethics; topics such as human cells, genetics, organs, disease and reproduction. Weekly debates/discussions on ethical issues. Active learning format. Animal dissections required. Suitable for students in any major. Does not fulfill prerequisites for allied health grad programs.

BIOL 1015. Human Physiology, Technology, and Medical Devices. (BIOL,TS; 4 cr. ; Student Option; Every Fall & Spring)
Course is organized around homeostasis, information flow, and other concepts in physiology. For non-biology majors who wish to explore interests in health care or medical device engineering. Active learning format. Labs focus on data collection and simple organ dissections. Does not fulfill prerequisites for most biomedical graduate programs.

BIOL 1020. Biology Colloquium. (; 1 cr. [max 2 cr.] ; S-N or Audit; Every Fall & Spring)
Introduction to the diverse fields of biology through seminars, lab tours, trips to Itasca Biological Station, and interaction with other

biology students and faculty. Course may be repeated once.

BIOL 1052. Environmental Biology: Science and Solutions. (ENV; 3 cr. ; Student Option; Every Fall)
This course explores the science behind environmental topics. It delves into the interface of science and policy, environmental decision-making and ethics. Topics include biodiversity, environmental toxicology, food production, and global climate change. Students looking to fulfill the liberal education requirement-Biological Sciences with Lab in this topic should take Biology 1055.

BIOL 1055. Environmental Biology: Science and Solutions with Laboratory. (BIOL,ENV; 4 cr. ; Student Option; Every Fall & Spring)
Explores science behind environmental topics. Delves into the interface of science and policy, environmental decision-making and ethics. Topics include biodiversity, env. toxicology, food production, and climate change. In lab students conduct the work of biologists, proposing hypotheses, conducting experiments, and analyzing/interpreting data. This course is intended to engage non-biology majors in the work of biology, studying current biological knowledge through evidence-based discussions of what is currently known, and by addressing science that is unknown to the students (and, at times to the biological community) through the generation and testing of hypotheses, collection and analysis of data, and practice of making data-informed conclusions.

BIOL 1093. Biology Colloquium: Directed Study. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Individual study or research undertaken by a student concurrently enrolled in Biol 1020 with oversight by a faculty sponsor. prereq: 1020 and concurrent registration is required (or allowed) in 1020

BIOL 1101. Genetics and Society. (CIV; 3 cr. ; Student Option; Every Spring)
Principles of heredity and their social and cultural implications. prereq: Credit will not be granted if credit has been received for: BIOL 3020, Biol 4003, GCD 3022. No CBS Major Juniors or Seniors.

BIOL 1301. Dean's Scholar: Introduction to Leadership. (; 1 cr. ; S-N only; Every Fall)
Leadership theory/concepts. Personal views on leadership. Characteristics for effective leadership. Course uses experiential teaching methods, self-reflection. prereq: Dean's Scholar

BIOL 1805. Nature of Life: Introducing New Students to the Biological Sciences. (; 0.5 cr. ; S-N or Audit; Every Fall & Spring)
Biological sciences, from molecules to ecosystems and from laboratory science to field biology. Introduction to the College of Biological Sciences community and opportunities. Held at Itasca Biological Station and Laboratories. Transportation, board, and lodging fee. prereq: Fr in College of Biological Sciences

BIOL 1806. Nature of Life, Part Two. (0.5 cr. ; S-N only; Every Spring)
Second semester of Nature of Life with focus on building intentional pathway in CBS/student success/engagement. prereq: 1805

BIOL 1912. Photographing the University Community. (; 2 cr. ; A-F only; Every Fall)
This seminar will provide students and faculty an opportunity to explore the art of photojournalism and/or documentary photography. Students and faculty will take photographs on the University campus or the surrounding neighborhoods and then each person will assemble their photographs into a coherent essay. The seminar will include social themes, and will have a strong writing component, as well as the obvious focus on photography.

BIOL 1913. Understanding the Evolution-Creationism Controversy. (; 1 cr. ; A-F only; Every Fall)
This seminar has two goals: 1) to help you succeed at the University of Minnesota, and 2) to help you develop your own understanding and appreciation of the evolution-creationism controversy. We?ll discuss the many aspects of the evolution-creationism controversy, including its history, legacy, relevance, and key people. We will also discuss a variety of issues related to the controversy, including those involving court decisions, public opinion, racism, politics, etc. Many people are emotional and opinionated about the evolution-creationism controversy. Although this seminar is not focused on opinions, we will talk about why so many people feel strongly about this issue, and why the controversy persists. You will be interested in?and probably surprised by?what you learn. Each week we will also talk about concerns and/or questions you have about life at the University. Although I can?t fix your parking tickets, I can offer advice about what you?ll need to do to succeed here.

BIOL 1915. Genomics in Your Current and Future Life. (; 1 cr. ; A-F only; Every Fall & Spring)
Our understanding of DNA and genomes has infiltrated every aspect of society including medicine (diagnosis and susceptibilities to disease as well as developing new gene-based therapies, including gene therapy), CSI, ethics, GMOs for sustainable agriculture, and even designing our kids genomes. Class lectures and all reading material will be available online. Students will share their thoughts on a variety of controversial issues both online. In class, we will use the on-line blogs and lecture material as a starting points to discuss further various aspects of different applications of modern precision genetic technologies. The fundamental goal of the class is to encourage students to develop their processes of thinking about, and discussing in a small group, current complex and controversial issues. No final papers and no final exam.

BIOL 1917. Experimental Evolution. (; 1 cr. ; A-F only; Every Fall)
Life originated over four billion years ago. Since that time, evolution has shaped living systems, generating tremendous biological diversity. Experimental evolution is a dynamic approach to investigating life, examining how and why biological systems change over evolutionary time. We will focus on how experimental evolution is done, what we have already learned, and the bright future for new research. Topics will include adaptive radiation, infectious diseases, the genetic basis of phenotypes, speciation, and the evolution of multicellularity. Readings will be primary literature and review articles, to be discussed every meeting. Toward the end of the semester, students will propose their own experimental evolution study based upon the readings, class discussions, and meetings with faculty.

BIOL 1918. Evolutionary Perspectives on Agriculture and Human Health. (; 1 cr. ; A-F only; Every Fall)
Crops, humans, pests, and pathogens have evolved and continue to evolve, largely by natural selection (nonrandom differences in reproduction and survival among random genetic variants). Weeds and insect pests readily evolve resistance to our control methods, from crop rotation to chemical pesticides. Human pathogens evolve resistance to antibiotics. Can we slow such harmful evolution? Also, can the evolutionary history of crops help guide plant breeding? Can our own evolutionary history suggest ways to improve health-care in humans? In alternate weeks, students will discuss an assigned article or video and then find a related scientific journal article and explain one figure from the article. Grades will depend in part on courteous and insightful questions and comments among students. This course will be offered remotely via Zoom at a scheduled time. Personal interaction in this course is required through audio and video using Zoom. Short presentations by students will use ?Share Screen?.

BIOL 1921. The Nexus Between Art and Biology. (; 2 cr. ; A-F only; Every Fall)
This seminar will explore the many and diverse interactions between art and biology. The topics covered range from the portrayal of biology in classic art, to the use of artistic venues for studying and remediating environmental problems, to the utility of photography, painting, sculpture, and other art forms to explore levels of biology ranging from molecular and cellular structures to landscapes. The course includes hands-on creation of artistic biological objects. Topics will be explored using recorded media and presentations by students, the instructor, and invited speakers to cover novel topics at the art/biology interface.

BIOL 1926. Entanglement of genomic and environmental influences on traits of organisms. (; 1 cr. ; A-F only; Every Fall)
Genetic determinism, a view that variation in traits is overwhelmingly due to genetic differences among individuals, has a deep history in biology. Despite many direct, experimental demonstrations of major effects of environmental conditions on many traits, emphasis on genetic effects predominates today, especially in the popular press. Through readings and discussion, we will explore the joint roles of genome and environment

as influences on traits, and we will consider implications for fields of biological research and also for society.

BIOL 1927. The Greatest Benefit to Humankind: the Nobel Prize and Where Good Ideas Come From. (; 1 cr. ; A-F only; Every Fall)
Through studying the Nobel Prize, the people and the research behind them, we?ll consider where good ideas come from and some of the best ideas that have led to the greatest benefit to humankind. The history of the Nobel Prize is filled with societal changing ideas, but it is also filled with drama and scandal! We?ll consider who has been chosen to receive a Nobel Prize and why, research awarded the Nobel Prize that has later been disproven, and discuss how the Nobel Prize selection might be adapted for the future. Students will examine innovation across a variety of disciplines and consider how solutions to problems facing society require creativity, collaboration, and new ways of thinking through activities designed to improve your creative thinking. Classwork will involve discussion, group work, writing, and an in-class presentation.

BIOL 1942. Science and Politics of Genetics and Reproduction. (TS; 3 cr. ; A-F only; Every Fall)
In this seminar, students will read, discuss, debate, and generally engage with a myriad of issues surrounding the science of genetics and the application of revolutionary technologies to human reproduction. Students will explore topics and controversies relating to the past, present, and future of human sexual activity and human reproduction, and how reproductive technologies (such as in vitro fertilization) have helped shape our modern society. Through the use of both fiction and non-fiction literature, students will learn the details of current scientific breakthroughs such as "designer babies." This seminar aims to engage students in an exploration of their personal beliefs about the roles of science, the government, and also religious institutions on human reproductive rights.

BIOL 1951. Foundations of Biology Lecture I for Biological Sciences Majors. (BIOL; 4 cr. ; A-F only; Every Fall & Spring)
Core biological concepts, from biomolecules to ecosystems. Emphasizes evolution, organismal diversity, and genetics within context of problem solving/applications. Students must take both BIOL 1951 and BIOL 1961 to be awarded the Biological Sciences LE. This course is required for all CBS majors

BIOL 1951H. Foundations of Biology Lecture I for Biological Sciences Majors. (BIOL; 4 cr. ; A-F only; Every Fall & Spring)
Core biological concepts, from biomolecules to ecosystems. Emphasizes evolution, organismal diversity, and genetics within context of problem solving/applications. Students must take both BIOL 1951H and BIOL 1961 to be awarded the Biological Sciences LE. This course is required for all CBS honors students

BIOL 1961. Foundations of Biology Lab I for Biological Sciences Majors. (BIOL; 2 cr. ; A-F only; Every Fall & Spring)
Core biological concepts, from biomolecules to ecosystems. Emphasizes evolution, organismal diversity, and genetics within context of problem solving/applications. Students must take both BIOL 1951 and BIOL 1961 to be awarded the Biological Sciences LE. This course is required for all CBS majors

BIOL 2001. Career Planning for Biologists. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Course structured to provide career planning and exploration guidance based on individual's specific goals. Option to focus coursework on identifying career interests, exploring career options in the biological sciences, preparing for job or internship applications, or organizing graduate school application materials. Provides career coaching on topics related to resume writing, interviewing and professional relationship building, and introduces resources to engage in effective career exploration and planning in the biological sciences.

BIOL 2003. Foundations of Biology for Biological Sciences Majors, Part II. (; 3 cr. ; A-F only; Every Fall & Spring)
Second of two courses. Biological concepts, from biomolecules to ecosystems. Ecology/ biochemistry concepts within problem solving/ application.

BIOL 2003H. Foundations of Biology for Biological Sciences Majors, Part II. (; 3 cr. ; A-F only; Every Fall & Spring)
Second of two courses. Biological concepts, from biomolecules to ecosystems. Ecology/ biochemistry concepts within problem solving/ application.

BIOL 2005. Animal Diversity Laboratory. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Dissection, direct observation of representatives of major animal groups.

BIOL 2007. Marine Animal Diversity Laboratory. (1 cr. [max 2 cr.] ; A-F only; Every Fall & Spring)
Survey of marine animal diversity. Understanding major animal groups, how they relate to one another, how they differ in structure, how each group achieves survival/ reproduction in diverse environments. Lab includes dissections, including vertebrates, such as fish. Prereq/coreq: BIOL 2005 or BIOL 2012

BIOL 2012. General Zoology. (; 4 cr. ; Student Option; Every Fall & Spring)
Major animal groups (phyla). Applications of morphological, physiological, and developmental characteristics to define evolutionary relationships. Parasitic forms affecting human welfare. Lab requires dissection, including mammals. prereq: One semester of college biology

BIOL 2101. Brewing: The Biology, History, and Practice. (3 cr. ; A-F only; Periodic Fall & Spring)
Rigorous look at the history of brewing, microbiology, biochemistry, and biological concepts associated with brewing, such as competition, and practical aspects of modern brewing. This lecture/laboratory hybrid course will teach students the components used in brewing and how they contribute to the final product as well as the process of brewing using hands on laboratory. Textbook is online and will be posted on the Canvas site. prereq: BIOL 1001 or 1009 or 1951 or 2002 or 2003 or 2004 Students must be 21 by the first day of class to register, we will check IDs on the first day of class. There are three required field trips. For the field trips students meet in McNeal Hall at 1:00pm and return approximately at 5pm to McNeal Hall.

BIOL 2301. Dean's Scholar: Critical Service Learning. (; 2 cr. ; S-N only; Every Fall & Spring)
Importance of service in leadership. How personal experiences influence perspectives on social issues. Techniques for group work. Service project with community organization related to biological sciences. prereq: 1301, CBS Dean's Scholar

BIOL 2800. Understanding the Environment: Ecology for Educators. (5 cr. ; A-F only; Every Summer)
Ecology/earth systems science content, concepts, and investigation skills that environmental educators, science communicators, and natural history interpreters should be proficient in when addressing respective audiences about science, environmental issues, and nature studies.

BIOL 2905. Nature of Life, Part III. (; 0.5 cr. ; S-N only; Every Fall)
Reflect on aspirations, personal characteristics, experiences. Resources/practical tools to reach educational/professional goals. Special focus on developing personal/professional goals, articulating personal experiences in light of aspirations. prereq: 1805, 1806

BIOL 2906. Nature of Life, Part IV. (0.5 cr. ; S-N only; Every Spring)
Reflect on aspirations, personal characteristics, experiences. Resources/practical tools to reach educational/professional goals. Special focus on developing personal/professional goals, articulating personal experiences in light of aspirations. prereq: 2905

BIOL 2960H. Exploring Research in the Biological Sciences. (; 1 cr. ; A-F only; Every Fall)
Explore areas of biological research. Learn where/how to access research papers. Prepare in-depth review paper. prereq: CBS, Honors program, soph, dept consent

BIOL 3001. Nature of Science and Research. (1 cr. ; S-N only; Every Fall)
Explore how to read/use research papers. Role of research ethics. Financial, legal, regulatory oversight on research/other topics. **This course is for new CBS transfer students from other institutions. prereq: College-level biology

BIOL 3004. Foundations of Biology for Biological Sciences Majors, Part II Laboratory. (3 cr. ; A-F only; Every Fall & Spring)
This course follows BIOL 1961 and is required for all CBS majors. Students design and perform research projects that will require an additional 4-to-6 hours per week of work

outside of class; times to be arranged. Each section is devoted to a single research area; check the section details to see which sections correspond to each research area. Research projects in zebrafish environmental toxicology and zebrafish microbiome sections will require in-person work in the BIOL 3004 laboratory. Only students with previous command line coding experience should enroll for a computational microbiology section. All projects involve applying quantitative skills, scientific method, and modern biological tools to real-world questions. Prerequisite is Foundations of Biology Lab I: BIOL 1961, 1961H, 2002, or 2002H AND CHEM 1021, 1061, or 1081 Credit will not be granted if credit has been received for:BIOL 3004H.

BIOL 3015. Molecular Biology. (2 cr. ; Student Option; Every Summer)
All areas of biology have been transformed by the recent advances in molecular biology technology. Every life scientist, whether they study viruses or crashes of elephants, uses DNA cloning, sequencing, and genomic analysis. This technology has also impacted all aspects of health care by generating highly specific diagnostic tools and personalized treatments. The purpose of this course is to give students a solid foundation in the principles and tools of molecular biology. Biol 3015 will introduce concepts and techniques for understanding gene expression and the flow of genetic information. We will discuss the structure of nucleic acids and proteins, the replication and repair of DNA, transcription and its regulation, and translation. Students will also learn about current technologies used in molecular biology including cloning, PCR, DNA sequencing, mass spectrometry, DNA microarrays, proteomics, bioinformatics, and whole genome analysis. This course is intended for students majoring in biology who have taken introductory biology and chemistry courses. At the University of Minnesota, this course is intended for undergraduates in the College of Biological Sciences. Biol 3015 will provide a strong foundation in the discipline of molecular biology, and will serve as a prerequisite for upper level courses in CBS. Students who have previously received a passing grade in Biol 3020 are not eligible for this course.

BIOL 3025. Molecular Biology and Society. (TS; 3 cr. ; Student Option; Every Fall & Spring)
An in-depth analysis of molecular biology topics and methods related to the Central Dogma of modern biology. Successful completion of this course is required as the prerequisite for most upper-level CBS courses.

BIOL 3209. Understanding the Evolution-Creationism Controversy. (CIV; 3 cr. ; A-F only; Every Fall & Spring)
Aspects of evolution-creationism controversy, including its history, legacy, relevance, and key people. Court decisions, public opinion, and related issues (e.g., racism, politics). prereq: BIOL 1001, 1009, 1951 or 2002, or equiv

BIOL 3211. Physiology of Humans and Other Animals. (3 cr. ; Student Option; Every Fall & Spring)
Study of the various solutions to common physiological problems faced by humans, other vertebrates, and invertebrates. Core concepts in physiology including flow down gradients, homeostatsis, cell-cell communication, interdependence of body systems, cell membrane dynamics, and mathematical modeling of physiological processes. Active learning format. prereq: [1009 or 2003], [CHEM 1062/1066 or 1082/1086], [2005 is recommended]

BIOL 3270. Introduction To Systems Biology. (3 cr. ; A-F only; Every Spring)
Emergent properties of metabolic networks; Computational modeling of metabolism; Parameter estimation from high-throughput measurements; Prediction of metabolic phenotypes for knockout mutants; Flux balance analysis; Metabolic control analysis. prereq: Recommended prereq MATH1241, BIOC3021

BIOL 3272. Applied Biostatistics. (; 4 cr. ; A-F only; Every Fall & Spring)
Conceptual basis of statistical analysis. Statistical analysis of biological data. Data visualization, descriptive statistics, significance tests, experimental design, linear model, simple/multiple regression, general linear model. Lectures, computer lab. prereq: High school algebra; BIOL 2003 recommended

BIOL 3272H. Applied Biostatistics. (; 4 cr. ; A-F only; Every Fall & Spring)
Conceptual basis of statistical analysis. Statistical analysis of biological data. Data visualization, descriptive statistics, significance tests, experimental design, linear model, simple/multiple regression, general linear model. Lectures, computer lab. prereq: High school algebra; BIOL 2003 recommended.

BIOL 3302. Dean's Scholar: Leadership Capstone Experience. (1 cr. ; S-N only; Every Fall & Spring)
In BIOL 3302, students will actively refine their perspectives about leadership, through examining their past experiences, their previous and future growth as a leader, and their personal effectiveness across situations and contexts. They will explore emotional and social awareness, vulnerability, feedback, perspective taking, critical thinking, empathy, and effective communication through conversation, written narratives, and creative expression. prereq: 1301, 2301, CBS dean's scholar

BIOL 3303. Dean's Scholar: Peer Leadership Development. (; 1 cr. ; S-N only; Every Fall)
This course teaches theoretical frameworks, principles, and practices of effective peer leadership. As a Dean's Scholars Peer Mentor, you are in a peer leadership role that requires you to serve as a support, resource, connection, and bridge between first year students and their campus experience. This course will teach you in-depth, academic frameworks about the theory behind peer leadership; how it impacts the college student experience, why it works, and tools and practices that distinguish role modeling from exceptional peer leadership. The course also offers a learning laboratory for you to reflect and synthesize various aspects of your student leadership experience with a community of fellow leaders.

BIOL 3311. Leadership in Science. (; 1 cr. ; Student Option; Every Fall)
Seminar and discussion on the topic of leadership in science.

BIOL 3503. Biology of Aging. (2 cr. ; A-F only; Periodic Fall)
Age-related changes in individuals/populations. Evolution of senescence. Genes that influence aging. Interventions. Prospects for an aging human society. prereq: 1002 or 1009 or 2003 or equiv

BIOL 3600. Directed Instruction. (; 1-2 cr. [max 6 cr.] ; S-N or Audit; Every Fall & Spring)
Students assist with biology colloquium. prereq: 1020, upper div, application, instr consent; up to 4 cr may apply to major

BIOL 3610. Internship: Professional Experience in Biological Sciences. (1-6 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Matches student's academic or career goals with opportunities in industry, non-profit organizations, and government agencies. Prereq-Acceptance into CBS Internship Program, internship workshop, college consent.

BIOL 3700. Undergraduate Seminar. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Faculty members lead students in discussions on topics of interest.

BIOL 3905. Beyond the Nobel Prize: Examining the Evolution of Swedish Innovation. (GP; 3 cr. ; A-F only; Every Spring)
This course is open to undergraduates from all disciplines and will appeal to students with a broad interest creativity and innovation.Students will examine innovation across a variety of disciplines and consider how solutions to problems facing society require creativity, collaboration, and new ways of thinking. In particular, we will explore personal creativity, as well as how environments can foster innovation, particularly in the Swedish context by traveling to Stockholm over spring break. We examine the reasons behind Sweden?s ranking (#2 in 2017) on the Global Innovation Index, as well as the Nobel Prize, international awards bestowed by Swedish institutions that recognize significant academic, cultural and scientific advances. In addition, as a learning abroad seminar, students will learn about their own level of and strategies to increase their intercultural competence, and engage in a practical experience of navigating another culture in an intentional and reflective way.

BIOL 3960H. Communicating in the Biological Sciences. (; 1 cr. ; A-F only; Every Fall)
Oral reports on topics of current interest to biologists. Progress reports on lab and field research by students.

BIOL 4003. Genetics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Genetic information, its transmission from parents to offspring, its expression in cells/

organisms, and its course in populations. prereq: Biol 3020 or Biol 3025 or Biol 3015 or BioC 3021 or BioC 4331 or grad MSB

BIOL 4004. Cell Biology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Processes fundamental to cells. Emphasizes eukaryotic cells. Assembly/function of membranes/organelles. Cell division, cell form/movement, intercellular communication, transport, secretion pathways. Cancer cells, differentiated cells. prereq: Biol 4003 or Biol 3020 or Biol 3025 or Biol 3015 or grad

BIOL 4201. Teaching in the Biology Laboratory. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Pedagogical underpinnings for teaching in lab. prereq: Student who is teaching in CBS lab course

BIOL 4321W. Deconstructing Research: Writing about Biological Research for Non-scientists. (WI; 2 cr. ; Student Option; Every Spring)
Deconstructing Biology Research is designed to help majors in the College of Biological Sciences improve their skills in selecting primary research papers, understanding the experimental approaches taken by the authors of those papers, and evaluating the results and conclusions. Students will then share that knowledge by writing effective deconstructions that explain the research approaches and results for different audiences, including the public at large.

BIOL 4590. Coral Reef Ecology. (2 cr. ; A-F only; Every Fall)
Contemporary issues in tropical reef ecology from diverse perspectives. Option of two-credit seminar during fall semester plus additional two-credit field option (BIOL 4596) to involve SCUBA diving/snorkeling on tropical reef. prereq: Introductory biology course with lab

BIOL 4596. Coral Reef Ecology (Dive Trip). (2 cr. ; A-F only; Every Fall)
SCUBA diving/snorkeling on tropical reef. Conduct primary research/writing. prereq: Introductory biology with lab, valid passport, and SCUBA certification.

BIOL 4793W. Directed Studies: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. One main feature of this course is that the student will receive writing instruction and the written output of the course will be revised during the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOL 4794W. Directed Research: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOL 4850. Special Topics in Biology. (; 1-5 cr. [max 10 cr.] ; A-F only; Periodic Summer)
Offered at Itasca Biological Station and Laboratories. Metagenomics, telemetry/animal behavior, aquatic botany, field evolution, parasite and disease ecology. prereq: Beginning biology

BIOL 4950. Special Topics in Biology. (; 1-4 cr. [max 12 cr.] ; S-N only; Periodic Spring)
In-depth study of special topic in life sciences.

BIOL 4960H. Thesis Writing in the Biological Sciences: Developing the Literature Review. (; 1 cr. ; A-F only; Every Fall)
In the Fall semester of the two-semester capstone thesis support course, CBS honors students will develop and refine the literature review introduction component of the honors thesis. The course will focus on conceptualizing the gap in knowledge, drafting the literature review, and revising in response to peer and outside reader feedback. We will use the literature to unpack the conventions of authentic scientific writing so that students can begin to draft other sections of their thesis (methods, results narrative, publication ready figures, legends) By the end of the term, students will have developed and peer-workshopped at least one draft module of each data-related thesis section and they will have a revised version of the thesis introduction/ literature review to deliver to their faculty research mentor for feedback before the start of the Spring term. Students should be in a research lab and have started their research project before the start of the semester. Students who have not yet fulfilled an upper division WI course in the biological sciences should wait until the Spring (final) semester to register for their major's version of WI directed research or WI directed studies (for example, MicB 4794W or 4793W). The completed and approved thesis will count for the WI.

BIOL 4961H. Thesis Writing in the Biological Sciences: Conveying and Contextualizing Results. (; 1 cr. ; A-F only; Every Spring)
In this second semester of the CBS thesis support course, honors students will continue work initiated Biol 4960H to develop/draft/ revise results/methods/discussion sections of thier honors thesis. In addition, they will prepare and present a professional research poster at the University of Minnesota Undergraduate Research Symposium in April. The complete thesis will be assessed by two or three faculty readers against standards outlined in CBS Thesis Assessment Rubric. Students who have not yet fulfilled an upper division WI course in the biological sciences should concurrently register for their major's version of WI directed research or WI directed studies (for example, MicB 4794W or 4793W). The completed and approved thesis will count for the WI.

BIOL 4993. Directed Studies. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the

student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOL 4994. Directed Research. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a Research/Directed Studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

BIOL 5272. Applied Biostatistics. (; 4 cr. ; A-F only; Every Fall & Spring)
Conceptual basis of statistical analysis. Statistical analysis of biological data. Data visualization, descriptive statistics, significance tests, experimental design, linear model, simple/multiple regression, general linear model. Lectures, computer lab. prereq: High school algebra; BIOL 2003 recommended.

BIOL 5309. Molecular Ecology And Ecological Genomics. (; 3 cr. ; Student Option; Fall Even Year)
Application of molecular tools (PCR, sequencing, AFLP, SNPs, QTL) and analyses of molecular data for understanding ecological/evolutionary processes. Strengths/weaknesses of techniques/analyses. Questions molecular tools are used to answer. prereq: BIOL 3407 or BIOL 3409 or BIOL 4003

BIOL 5407. Ecology. (; 3 cr. ; Student Option; Every Fall & Spring)
Principles of population growth/interactions and ecosystem function applied to ecological issues, including regulation of human populations, dynamics/impacts of disease, invasions by exotic organisms, habitat fragmentation, and biodiversity. Lab. prereq: [One semester college biology, [MATH 1142 or MATH 1271 or MATH 1281 or equiv], grad student] or instr consent

BIOL 5409. Evolution. (; 3 cr. ; Student Option; Every Fall)
Diversity of forms in fossil record and in presently existing biology. Genetic mechanisms of evolution. Examples of ongoing evolution in wild/domesticated populations and in disease-causing organisms. Lab. prereq: One semester of college biology, grad student

BIOL 5701. Surveying the Field: Science Communication and Public Engagement. (; 2 cr. [max 3 cr.] ; Student Option; Every Spring & Summer)
Course Description: How do scientists learn to become effective communicators? This online course will explore the theoretical and practical aspects of science communication and public engagement. We will analyze effective communication strategies and explore the challenges and opportunities for researchers seeking to engage with the public in formal and informal settings. We will hear and interact with guest speakers and explore the environmental communication landscape through readings, research, presentations, and writing. This course is designed to help you practice engaging diverse audiences ? red and blue, young and old ? with science. In your final project, you will build upon the skills you?ve developed to create a public engagement activity, long-form article, or performance piece. All work will be shared with your peers during the final week of class.

BIOL 5910. Special Topics in Biology for Teachers. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Spring & Summer)
Courses developed for K-12 teachers depending on topics or subtopics which might include any of the following: plant biology, animal biology, genetics, cell biology, biochemistry, microbiology. prereq: BA or BS in science or science education or elementary education or K-12 licensed teacher

BIOL 5950. Special Topics. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall, Spring & Summer)
In-depth study of special topic in life sciences.

Biology, Society, and Environ (BSE)

BSE 2001. An Introduction to Biology, Society, and Environment. (2 cr. ; A-F only; Every Fall & Spring)
Intellectual threads and faculty for courses in BSE major, especially social sciences. Content varies. Students may take this course to explore the BSE major. Must be completed prior to senior year.

BSE 3361W. Geography and Public Policy. (WI; 3 cr. ; Student Option; Every Fall)
Nature/effects of federal policy in United States. How documents produced as policy are crafted/implemented. Policies relating to food/agriculture, forestry, wildlife, transportation.

BSE 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor. A student may only earn credit for a given internship through one course at a time.

BSE 3991. Biology, Society and Environment Capstone. (; 1 cr. ; S-N only; Every Fall & Spring)
This course will help you reflect on your path through the BSE major, assess the knowledge and skills you developed during your degree program, and articulate how your knowledge and skills support your personal and professional interests and goals. BSE 3991 is open to second-semester Junior and Senior BSE majors.

BSE 3996. Senior Project Directed Research. (3-4 cr. [max 8 cr.] ; A-F only; Every Fall, Spring & Summer)
Individual guided research course taken in fulfillment of BSE senior project requirement. Prereq-instr consent, dept consent, college consent.

BSE 3997. Senior Project. (2 cr. [max 4 cr.] ; A-F only; Every Fall, Spring & Summer)
Senior Project add-on credit. Must be taken concurrently with "BSE Core" or "BSE Theme Elective" course related to area of specialization. Prereq-instr consent, dept consent, college consent.

Biomedical Engineering (BMEN)

BMEN 1601. Biomedical Engineering Undergraduate Seminar I. (1 cr. ; A-F only; Every Fall)
Introduction to biomedical engineering from academic/industrial perspectives. Survey of current/emerging areas. prereq: CSE student

BMEN 1602. Biomedical Engineering Undergraduate Seminar II. (1 cr. ; A-F only; Every Spring)
Continuation of 1601. Emphasizes biomedical engineering design and numerical analysis. prereq: CSE student

BMEN 2101. Biomedical Thermodynamics. (; 3 cr. ; A-F only; Every Spring)
Introduction to thermodynamics with biological emphasis. First Law, Boltzmann distribution, reaction equilibrium, random walks, friction, diffusion in fluids, entropy, free energy, Maxwell relations, phase equilibria, chemical forces, self-assembly, cooperative transitions, molecular machines, membranes. Introduction to statistical mechanics. prereq: 2501, CHEM 1022, MATH 2373, concurrent registration is required (or allowed) in MATH 2374

BMEN 2151. Introductory Medical Device Prototyping. (3 cr. ; A-F only; Every Spring)
Engineering drawing with SolidWorks; CAM and 3D FDM printing; Lathe, mill, and other shop instruction; Biomaterials & biocompatibility; Digital and analog electronics, SPICE and test equipment; Programming in C; and Microcontrollers, sensors and actuators.

BMEN 2401. Programming for Biomedical Engineers. (; 2 cr. ; A-F only; Every Fall)
Introduction to structured programming in biomedical engineering. Development of programming skills/logic relevant for numerical methods used for analyzing biomedical signals and solving algebraic/differential equations using Matlab. Programming logic/structured programming, introduction to

scientific computation motivated by signal representations. Weekly lecture, computer lab modules. prereq: MATH 1272, PHYS 1302, CSE student

BMEN 2501. Cellular and Molecular Biology for Biomedical Engineers. (BIOL; 4 cr. ; A-F or Audit; Every Fall)
Fundamentals of cellular/molecular biology. Chemistry of proteins, lipids, and nucleic acids. Applications to biomedical engineering. Function/dynamics of intracellular structures and differentiated animal cells. Application of physical/chemical fundamentals to modeling cellular/subcellular processes. Lecture/lab. prereq: concurrent registration is required (or allowed) in CHEM 1022, concurrent registration is required (or allowed) in MATH 1372, concurrent registration is required (or allowed) in PHYS 1302, CSE student

BMEN 3011. Biomechanics. (3 cr. ; A-F or Audit; Every Fall)
Statics, dynamics, deformable body mechanics applied to biological/biomedical problems. Mechanical properties of biological/commonly used biomedical engineering materials. Techniques for numerical solution of biomechanics problems. Lecture/Discussion. prereq: BME Upper Div or dept consent

BMEN 3015. Biomechanics Lab. (1 cr. ; A-F or Audit; Periodic Fall)
Lab accompanies BMEn 3011 Biomechanics. prereq: [BME UD or dept consent], concurrent registration is required (or allowed) in 3011

BMEN 3111. Biomedical Transport Processes. (3 cr. ; A-F or Audit; Every Spring)
Principles of momentum, heat, mass transfer illustrated with applications in physiological processes. Fluid mechanics, heat condition, mass diffusion, convection. Lecture. prereq: [3011, 3015], [BMEN upper div or dept consent]

BMEN 3115. Biomedical Transport Processes Lab. (1 cr. ; A-F or Audit; Every Spring)
Lab accompanies BMEn 3111 Biomedical Transport Processes. prereq: [3011, concurrent registration is required (or allowed) in 3111], [BMEN upper div or dept consent]

BMEN 3151. Medical Device Practicum. (1 cr. ; A-F only; Every Summer)
BMEN 3151 "Medical Device Practicum" allows students to use the skills they learned in BMEN 2151 "Introductory Medical Device Prototyping" for making an actual medical device prototype. Weekly seminars introduce advanced medical device topics that will be fundamental to senior design. Students will become acquainted with the following topics: Design opportunities in medicine, conceiving and vetting a medical device, FDA regulations and guidance, intellectual property, commercialization licensing and entrepreneurship, and building a medical device prototype.

BMEN 3211. Bioelectricity and Bioinstrumentation. (3 cr. ; A-F or Audit; Every Fall)
Principles of electrical phenomena, instruments relevant to biomedical applications. Lecture/discussion. prereq: BME Upper Div or dept consent

BMEN 3215. Bioelectricity and Bioinstrumentation Lab. (1 cr. ; A-F or Audit; Periodic Fall)
Lab accompanies BMEn 3211 Bioelectricity/Bioinstrumentation. prereq: [BMEN Upper Div or dept consent], concurrent registration is required (or allowed) in 3211

BMEN 3311. Biomaterials. (3 cr. ; A-F or Audit; Every Spring)
Principles of biomaterials. Organic chemistry/biochemistry of natural/artificial biomaterials. Physical characterization/mechanical testing. Biomedical applications. Lecture/discussion. prereq: 2101, [BMEn Upper Div or dept consent]

BMEN 3315. Biomaterials Lab. (1 cr. ; A-F or Audit; Every Spring)
Lab accompanies BMEn 3311 Biomaterials. prereq: [2101, concurrent registration is required (or allowed) in 3311], [BMEN Upper Div or dept consent]

BMEN 3411. Biomedical Systems Analysis. (3 cr. ; A-F or Audit; Every Spring)
Quantitative analysis of physiological/biological systems. First/second order systems, linear time-invariant systems, systems classification/identification. Linear control theory/controller synthesis. Electrical, mechanical, thermal, chemical/biomedical control systems. prereq: 3211, [BME Upper Div or dept consent]

BMEN 3415. Biomedical Systems Analysis Lab. (1 cr. ; A-F or Audit; Every Spring)
Lab accompanies BMEn 3411 Biomedical Systems Analysis. prereq: [3211, concurrent registration is required (or allowed) in 3411], [BME Upper Div or dept consent]

BMEN 3601. Biomedical Engineering Careers and Practice in the Med Tech Industry. (1 cr. ; A-F only; Every Spring)
Local industry speakers describe various job roles available to BBmE graduates at graduation. Input from Career Center on internship/job searching/interviewing. Exposure to other aspects of the medical devices industry (e.g. failure mode analysis, tolerancing, reading/critiquing clinical literature, etc).

BMEN 4001W. Biomedical Engineering Design I. (WI; 3 cr. ; A-F or Audit; Every Fall)
Design/analysis of biomedical devices/technologies. Students work in teams on open ended design project, present completed work at design show. prereq: 2501, 3001, 3101, 3201, 3301, 3701

BMEN 4002W. Biomedical Engineering Design II. (WI; 3 cr. ; A-F or Audit; Every Spring)
Continuation of 4001W. prereq: 4001W

BMEN 4011. CAD/CAE of Bioelectrical Devices. (1 cr. ; A-F or Audit; Every Fall)
Simulation, analysis, design of industry common Bioelectrical Devices with using CAD software. Altium Designer CAD/LT Spice. prereq: [3211, 3215] or instr consent

BMEN 4013. CAD of Biomechanical/transport Devices. (1 cr. ; A-F or Audit; Every Fall)
Introduction to CAD modeling/analysis for medical device engineers using SOLIDWORKS CAD platform. Emphasis on practical applications of CAD for engineers using real-world examples from actual industry projects. prereq: BME Upper Division or instr consent

BMEN 4015. CAE of Biomechanical/Transport Devices. (1 cr. ; A-F or Audit; Every Fall)
Computational modeling and simulation of biomechanical and biotransport devices using COMSOL Multiphysics software. prereq: 3011, 3015, 3111, 3115

BMEN 4710. Directed Research. (; 1-4 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent laboratory research under faculty supervision. prereq: instr consent, dept consent

BMEN 4720. Directed Study. (; 1-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Directed study under faculty supervision. prereq: instr consent, dept consent

BMEN 4794H. Directed Research Honors. (; 1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Independent laboratory research under faculty supervision. prereq: BME UD, UHP student, instr consent, dept consent

BMEN 4896. Industrial Assignment I: Co-op Program. (; 2 cr. ; A-F only; Every Summer)
Industrial assignment in co-op program. Industrial work assignment in engineering intern program. Evaluation based on student's formal written report covering semester's work assignment. Please visit the Engineering Co-op Program's website for the full syllabus and course information: http://co-op.umn.edu prereq: BMEn upper div, completion of required courses in BMEn prog through spring sem of 3rd yr, registered in co-op prog prereq: BMEn upper div, completion of required courses in BMEn prog through spring sem of 3rd yr, registered in co-op prog

BMEN 4996W. Industrial Assignment II: Co-op Program. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Industrial assignment in co-op program. Solution of system design problems that require developing criteria, evaluating alternatives, and generating a preliminary design. Final report emphasizes design communication and describes design decision process, analysis, and final recommendations. Please visit the Engineering Co-op Program's website for the full syllabus and further course information: http://co-op.umn.edu prereq: 4896, registered in co-op prog

BMEN 5001. Advanced Biomaterials. (; 3 cr. ; A-F or Audit; Every Fall)
Commonly used biomaterials. Chemical/physical aspects. Practical examples from such areas as cardiovascular/orthopedic applications, drug delivery, and cell encapsulation. Methods used for chemical analysis and for physical characterization of biomaterials. Effect of additives, stabilizers, processing conditions, and sterilization methods. prereq: 3301 or MatS 3011 or grad student or instr consent

BMEN 5031. Engineering Extracellular Matrices. (3 cr. ; A-F only; Every Fall)
This class explores the complex set of fibrous and linking proteins of tissues, namely the extracellular matrix (ECM). The ECM is crucial not only for maintaining the structure of tissues but also for guiding and maintaining cellular functions and fate processes. The purpose of the course is to become acquainted with ECM proteins and to investigate how control or manipulation of ECM proteins impacts on cell and tissue function with an emphasis on impacts for regenerative medicine. In the course of this study, we will apply fundamentals of physics, chemistry, and mathematics to make predictions, solve problems and optimize outcomes related to ECM engineering. Required prerequisites: Upper Division Undergraduate or Graduate level student standing in CSE. Recommended prerequisites: BMEn 2501, 3011/3015, 3111/3115, 3311/3315, or equivalents (introductory cell/molecular biology, biomaterials, biotransport, biomechanics).

BMEN 5041. Tissue Engineering. (; 3 cr. ; Student Option; Every Spring)
Fundamentals of wound healing and tissue repair; characterization of cell-matrix interactions; case study of engineered tissues, including skin, bone marrow, liver, vessel, and cartilage; regulation of biomaterials and engineered tissues. prereq: CSE upper div or grad student or med student or instr consent

BMEN 5101. Advanced Bioelectricity and Instrumentation. (; 3 cr. ; Student Option; Periodic Spring)
Instrumentation, computer systems, and processing requirements for clinical physiological signals. Electrode characteristics, signal processing, and interpretation of physiological events by ECG, EEG, and EMG. Measurement of respiration and blood volume/flow. prereq: [CSE upper div, grad student] or instr consent

BMEN 5111. Biomedical Ultrasound. (; 3 cr. ; Student Option; Every Spring)
Introduction to biomedical ultrasound, including physics of ultrasound, transducer technology, medical ultrasound imaging, photoacoustic imaging, applications of non-linear acoustics, and high-intensity ultrasound. prereq: [[PHYS 1302 or equiv], [MATH 2374 or equiv]] or instr consent

BMEN 5151. Introduction to BioMEMS and Medical Microdevices. (; 2 cr. ; A-F or Audit; Every Spring)
Design/microfabrication of sensors, actuators, drug delivery systems, microfluidic devices, and DNA/protein microarrays. Packaging, biocompatibility, ISO 10993 standards. Applications in medicine, research, and homeland security. prereq: CSE sr or grad student or medical student

BMEN 5201. Advanced Biomechanics. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to biomechanics of musculoskeletal system. Anatomy, tissue material properties. Kinematics, dynamics, and control of joint/limb movement. Analysis of forces/motions within joints. Application to injury, disease. Treatment of specific joints, design of orthopedic devices/implants. prereq: [[3001 or equiv], [CSE upper div or grad student]] or instr consent

BMEN 5311. Advanced Biomedical Transport Processes. (3 cr. ; Student Option; Every Spring)
Fluid flow and mass transfer in the body, bioreactors, and medical devices. Pulsatile flows. Flows around curved and deformable vessels. Boundary layer flows. Blood rheology. Interstitial (porous media) flows. Oxygenation. Cell migration. Student critiques of published papers.

BMEN 5321. Microfluidics in Biology and Medicine. (3 cr. ; A-F or Audit; Every Fall)
Fundamentals of microfluidics. Fluid mechanics/transport phenomena in microscale systems. Pressure/surface driven flows. Capillary forces, electrokinetics, hydraulic circuit analysis. Finite element modeling for microfluidic systems. Design/fabrication methods for microfluidic devices. prereq: [3111, AEM 4201, ChEn 4005, [ME 3331 or ME 3332 or CSE grad student or instr consent]

BMEN 5351. Cell Engineering. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Engineering approaches to cell-related phenomena important to cell/tissue engineering. Receptor/ligand binding. Trafficking/signaling processes. Applications to cell proliferation, adhesion, and motility. Cell-matrix interactions. prereq: [2401, [2501 or concurrent registration is required (or allowed) in 5501], [MATH 2243 or MATH 2373]] or CSE upper div or grad student or instr consent

BMEN 5361. 3D Bioprinting. (2 cr. ; A-F only; Every Fall)
3D Bioprinting has recently emerged as a new biofabrication technology that merges many engineering fields (eg. BME, MechE, ChemE) with other disciplines such as Materials Science, Stem Cell Biology, Physiology, Surgery and Pharmacology. This course serves as an introduction to the field and how its disciplines interface, while providing the student with knowledge of many of the most common bioprinting methods and applications being developed today through lectures by experts in the field (academia and industry) as well as hands-on lab exercises in the UMN 3D Bioprinting Facility.

BMEN 5401. Advanced Biomedical Imaging. (; 3 cr. ; A-F or Audit; Every Fall)
Functional biomedical imaging modalities. Principles/applications of technologies that offer high spatial/temporal resolution. Bioelectromagnetic and magnetic resonance imaging. Other modalities. prereq: CSE upper div or grad student or instr consent

BMEN 5411. Neural Engineering. (; 3 cr. ; Student Option; Every Fall)
Theoretical basis. Signal processing techniques. Modeling of nervous system, its response to stimulation. Electrode design, neural modeling, cochlear implants, deep brain stimulation. Prosthetic limbs, micturition control, prosthetic vision. Brain machine interface, seizure prediction, optical imaging of nervous system, place cell recordings in hippocampus. prereq: 3401 recommended

BMEN 5412. Neuromodulation. (3 cr. ; A-F or Audit; Every Fall)
Fundamentals of bioengineering approaches to modulate the nervous system, including bioelectricity, biomagnetism, and optogenetics. Computational modeling, design, and physiological mechanisms of neuromodulation technologies. Clinical exposure to managing neurological disorders with neuromodulation technology.

BMEN 5413. Neural Decoding and Interfacing. (; 3 cr. ; A-F or Audit; Every Spring)
Neural interface technologies currently in use in patients as well as the biophysical, neural coding, and hardware features relating to their implementation in humans. Practical and ethical considerations for implanting these devices into humans. prereq: 5411, [3201 or 3401 or equiv recommended]

BMEN 5421. Introduction to Biomedical Optics. (; 3 cr. ; A-F or Audit; Periodic Spring)
Biomedical optical imaging/sensing principles, laser-tissue interaction, detector design, noise analysis, interferometry, spectroscopy. Optical coherence tomography, polarization, birefringence, flow measurement, fluorescence, nonlinear microscopy. Tours of labs. prereq: CSE sr or grad student

BMEN 5501. Biology for Biomedical Engineers. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Concepts of cell/tissue structure/function. Basic principles of cell biology. Tissue engineering, artificial organs. prereq: Engineering upper div or grad student

BMEN 5601. Cardiovascular Devices. (1 cr. ; A-F or Audit; Every Spring)
Design of cardiovascular devices with experts from local medtech companies. Discussion of clinical need, the generic design (emphasizing use of engineering principles), typical testing and validation methods, and major limitations of the available devices. Design, analysis, and testing of these and related devices. prereq: BMEN 3011, 3111, 3211, or equivalents with instr consent

BMEN 5701. Cancer Bioengineering. (3 cr. ; A-F or Audit; Every Fall)
Cancer-specific cell, molecular/genetics events. Quantitative applications of bioinformatics/systems biology, optical imaging, cell/matrix mechanics. Drug transport (with some examination of design of novel therapeutics). prereq: [Upper division CSE undergraduate, CSE graduate student] or instr consent

BMEN 5910. Special Topics in Biomedical Engineering. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Special topics in biomedical engineering.

BMEN 5920. Special Topics in Biomedical Engineering. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall)
Special topics in biomedical engineering.

Bioproducts and Biosystems Eng (BBE)

BBE 1001. Bioproducts and Biosystems Engineering Orientation. (; 1 cr. ; S-N or Audit; Every Fall)
Academic programs/careers related to bioproducts and biosystems engineering. Required field trip.

BBE 1002. Biorenewable Resources. (TS; 3 cr. ; Student Option; Every Fall & Spring)
In this course you will gain a basic understanding of what biorenewable resources are and the benefits and challenges that biorenewable materials provide. You will learn how to evaluate the environmental impact of various material choices and the technical and economic implications of these options.

BBE 2001. Mechanics and Structural Design. (; 4 cr. ; A-F or Audit; Every Fall)
Fundamental treatment of statics, dynamics, and principles of structural design. Techniques for individual components, including trusses, beams, and columns. Using conventional lumber products, engineered wood products, and steel. Lab. Prerequisite: Math 1272 or Math 1372 or Math 1572H and Phys 1101W or Phys 1301W or Phys 1401V)

BBE 2003. Computer Applications in Bioproducts and Biosystems Engineering. (3 cr. ; A-F or Audit; Every Fall)
Applications of computational methods for solving practical problems in Bioproducts and Biosystems Engineering. Applications of computer software, for instance, Matlab, R, and Excel, in assisting engineering calculations and designs in Bioproducts and Biosystems Engineering. Prereq: (Math 1271 or Math 1371, Math 1272 or Math 1372, Concurrent registration in [{Math 2243 or 2373} OR {Math 2263 or 2374}]) CSE lower division or CSE Upper Division BBE Majors or CFANS Pre-BBE (Premajor) or instructor consent.

BBE 2201. Renewable Energy and the Environment. (TS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
There is a growing sense of national and global urgency regarding carbon and climate change with particular emphasis on our energy system. Unfortunately, the answers are not simple. In this course, students explore our wide range of traditional and renewable energy sources and how these options impact our environment and society. Students are also exposed to the complex and compelling ethical issues raised by global, national, and local changes in how we produce and use energy. This course informs and engages students to be thoughtful, rather than passive consumers of energy. Students gain the knowledge necessary to be articulate in career, community, and personal arenas regarding renewable energy resources. In addition, students develop the ability to evaluate and respond to present and future technological changes that impact their energy use in the workplace, at home, and in the community. This course was designed and offered as an online course since 2011. For more details on the course please look at the syllabus and some comments from previous students by going to bbe2201.cfans.umn.edu

BBE 3002. Introduction to Engineering Design. (; 3 cr. ; A-F only; Every Fall)
Identify, formulate, develop/complete open-ended designs in bioproducts & biosystems engineering at the conceptual level; engineering economics principles, safety/health considerations, and ethics for design project. Written, graphical, and oral presentations. prereq: [MATH 1271 or MATH 1371, CHEM 1021, BBE lower div (soph) or upper div (jr), freshman writing req] or instr consent

BBE 3012. Transport in Biological Processes I. (4 cr. ; A-F only; Every Fall)
Introduction to fluid mechanics. Fluid statics/kinematics. Differential/finite control volume analysis with continuity, momentum, energy equations. Bernoulli/Euler Equation. Dimensional analysis. Potential flow. Non-Newtonian Fluids. Applications to biological fluids/biological systems. prereq: BBE 1001 or concurrent registration and BBE 2001 and BBE 3033 and Math 2243 or Math 2373 or Math 2574H and Math 2263 or Math 2374 or Math 2573H and Phys 1302W or Phys 1402V

BBE 3013. Engineering Principles of Molecular and Cellular Processes. (3 cr. ; A-F or Audit; Every Fall)
Applied engineering principles in biological processes. Classification of microbes of industrial importance. Parameters for cellular control. Modeling of cell growth/metabolism, enzymatic catalysis, bioreactor design, product recovery operations design. Case studies. prereq: BBE 1001 or concurrent reg and BIOL 1009 and CHEM 1062 or equiv and CHEM 1066 or equiv and MATH 1372 or equiv and BIOC 2011 or CHEM 2301, or instructor consent

BBE 3023. Ecological Engineering Principles. (3 cr. ; Student Option; Every Fall)
Physical, thermal, texture, strength, moisture properties of soil. Saturated/unsaturated moisture movement. Quantitative descriptions of mass/energy flux/storage in ecosystems. Distribution of vegetation in landscapes. Engineering/management impacts on soil-water-plant systems. prereq: BIOL 1009, [3012 or concurrent registration is required (or allowed) in 3012] or instr consent

BBE 3033. Material and Energy Balances in Biological Systems. (3 cr. ; A-F or Audit; Every Spring)
Basic principles of materials and energy balances, their applications in biological systems. prereq: [CHEM 1062 or equiv], [CHEM 1066, or equiv], [MATH 1372 or equiv], [PHYS 1302W or equiv]

BBE 3043. Biological and Environmental Thermodynamics. (3 cr. ; A-F or Audit; Every Spring)
Laws of thermodynamics for energy, environmental and biological sciences. First/second laws of thermodynamics in representing phase change, biochemical reactions, metabolic cycles, and photosynthesis. prereq: BIOL 1009, [CHEM 1061 or equiv], [CHEM 1065, or equiv], [MATH 1372 or equiv], [PHYS 1302 or equiv]

BBE 3093. Directed Studies. (; 1-5 cr. ; Student Option; Every Fall, Spring & Summer)
Independent study of topic(s) involving physical principles as applied to agricultural production and land resources. prereq: instr consent

BBE 3101. Introductory Statics and Structures for Construction Management. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Statics, engineering wood design principles, mechanical properties of wood. Design techniques for individual components. Trusses, beams, columns. Using conventional lumber products, engineered wood products, and steel. Simple structures explored through examples, assignments. prereq: Working knowledge of [trigonometry, geometry, algebra]

BBE 3201. Sustainability of Food Systems: A Life Cycle Perspective. (GP; 3 cr. ; A-F only; Every Fall & Spring)
Consequences of global food system. Diversity in food systems. Current topics in food sustainability.

BBE 3394. Directed Research. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

BBE 3396. Industry Assignment. (1 cr. ; A-F or Audit; Every Fall & Spring)
Students participating in industrial or experiential learning assignment. Evaluation based on formal final report; coordinated with faculty and industry advisor.

BBE 3480. Special Topics. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

BBE 4001. Chemistry of Biomass and Biomass Conversion to Fuels and Products. (ENV; 4 cr. ; A-F or Audit; Every Fall)
Chemistry of biomass and its sustainable utilization for biofuels and bioproducts, including bio-based materials. Chemicals/ energy and their environmental implications within the context of chemical principles and associated reactions underlying the structure, properties, processing, and performance of plant materials. prereq: CHEM 2301 or instr consent

BBE 4013. Transport in Biological Processes II. (3 cr. ; A-F or Audit; Every Spring)
Application of thermodynamics, fluid flow, heat/ mass transfer to design problems. Biological processes/materials at cell, organism, system level. Agricultural, environmental, food, bioprocess applications. Solution of equations

involving computer programming assignments. prereq: 3012, 3043, [upper div CSE or instr consent]

BBE 4023W. Process Control and Instrumentation. (WI; 3 cr. ; A-F or Audit; Every Fall)
Measurement of motion, force, pressure, flow, temperature, size, shape, color, texture, rheology, moisture, water mobility, fat, and pH. Linking physical and biological control systems. prereq: Upper div CSE or grad student

BBE 4301. Applied Surface and Colloid Science. (; 3 cr. ; Student Option; Every Fall)
Introduction to surface/colloid science concepts. Surface tension, wetting, adsorption, capillarity. Formation/stability of sols, emulsions, and foams. Water solubility. Partition coefficients of organic species. Properties of both surfactants and water soluble polymers. Focuses on interdisciplinary applications. prereq: 3043 or BMEN 2101 or CHEN 3101 or CHEM 4501 or instr consent

BBE 4302. Biodegradation of Bioproducts. (; 3 cr. ; Student Option; Every Spring)
Organisms of importance to bio-based products. Deterioration, control, bioprocesses for benefit. prereq: 1002 or instr consent

BBE 4303. Introduction to Bio-based Materials Science. (3 cr. ; A-F or Audit; Every Spring)
Principles of materials science, their application to bio-based materials. prereq: 2001 or instr consent

BBE 4305. Pulp and Paper Technology. (; 3 cr. ; Student Option; Every Spring)
Pulping processes, fiber refining/processing, paper manufacturing, fiber/paper properties, recycling. Water requirements, effluent treatment. Chemical/mechanical pulping, pulp preparation, secondary fiber, de-inking, wet end additives. Lab problems/exercises, lectures. Online course. prereq: Junior or senior or instr consent

BBE 4333. Off-road Vehicle Design. (4 cr. ; A-F or Audit; Every Spring)
Mechanics involved in designing/testing off-road vehicle. Vehicle mechanics, traction, and performance. Complexity/modeling of vehicle interaction with soil, muskeg, and snow. prereq: [[2001, 4303] or [AEM 2021, AEM 3031], [3012 or CEGE 3502 or concurrent registration is required (or allowed) in CEGE 3502], upper div CSE] or instr consent

BBE 4355. Design of Wood Structures. (; 3 cr. ; Student Option; Every Spring)
Design of wood structures using Allowable Stress Design. Wood properties/characteristics important to structural design. Heavy/light frame wood construction. prereq: 2001 or CE student or instr consent

BBE 4401. Bioproducts Separation and Purification Processes. (3 cr. ; A-F or Audit; Every Fall)
Unit operations of bioproducts engineering/ manufacture; separations and purification processes.

BBE 4402. Bio-based Products Engineering Lab II. (2 cr. ; A-F or Audit; Every Fall)
Unit operations laboratory exercises in bio-based products engineering/manufacture. prereq: BBE 2003 and BBE 4013, [jr or sr or instr consent]

BBE 4403. Bio-based Products Engineering Lab I. (; 2 cr. ; A-F or Audit; Every Spring)
Lab exercises in bio-based products engineering. prereq: CHEM 2301, [jr or sr or instr consent]

BBE 4404. Biopolymers and Biocomposites Engineering. (; 3 cr. ; A-F or Audit; Every Fall)
Structure/properties of biopolymers. Engineering of composites from these biopolymers or plant-based materials. prereq: [BBE/CSE upper division] or instr consent

BBE 4502W. BBE Capstone Design. (WI; 4 cr. ; A-F or Audit; Every Spring)
Students develop, select, formulate, and complete an open-ended, comprehensive engineering process/product design project. This course should be taken during the last spring semester before graduation. prereq: 2002, sr

BBE 4523. Ecological Engineering Design. (; 3 cr. ; A-F or Audit; Every Spring)
Application of ecological engineering to design of remediation systems. Artificial ecosystems, ecosystem/wetland restoration, constructed wetlands. Biological engineering for slope stability. Waste treatment. Restoring ecological service of watersheds. prereq: [CHEM 1022 or [CHEM 1062, CHEM 1066], 3012, upper div CSE] or instr consent

BBE 4533. Sustainable Waste Management Engineering. (; 3 cr. ; A-F or Audit; Every Spring)
Sources/characteristics of agricultural wastes. Livestock, food processing, domestic wastes. Physical, biological, chemical, rheological, microbiological properties. Effects on environment. Collection, storage, treatment (aerobic/anaerobic), use/disposal. Land application. prereq: 3023, upper div CSE

BBE 4535. Assessment and Diagnosis of Impaired Waters. (; 3 cr. ; A-F only; Every Fall)
Assessing impaired waters and developing TMDL for conventional pollutants. Preparing/ communicating legal, social, and policy aspects. TMDL analysis of real-world impaired waters problem. Field trip to impaired waters site. prereq: BBE 3012 and Upper division in CSE or CFANS or CBS student or instr consent

BBE 4608. Environmental and Industrial Microbiology. (3 cr. ; A-F only; Every Fall)
Use of organisms in remediation of waste and pollution problems related to bio-based product industries. Types, characteristics, identification of useful microorganisms. Applications of microbes to benefit industrial processes of wood and fiber. prereq: [BIOL 1001 or BIOL 1009], CHEM 1011

BBE 4713. Biological Process Engineering. (; 3 cr. ; A-F or Audit; Every Spring)
Material/energy balances. Homogeneous reactions of bioprocess engineering/biological systems. Fermentation engineering, reactor design. Filtration, centrifugation, separation, absorption, extraction, chromatography. Biorefining. Conversion of biomass. prereq: [3033, [4013 or concurrent registration is required (or allowed) in 4013], upper div CSE] or instr consent

BBE 4723. Food Process Engineering. (; 3 cr. ; A-F or Audit; Every Spring)
Material/energy balance, fluid dynamics, heat/mass transfer in refrigeration, freezing, psychometrics, dehydration, evaporation, non-thermal processing, and separation. Development control for production of food products. prereq: [[4013 or concurrent registration is required (or allowed) in 4013], upper div CSE] or instr consent

BBE 4733. Renewable Energy Technologies. (TS; 3 cr. ; A-F or Audit; Every Spring)
Energy security. Environmental, economic, societal impacts. Current/emerging technologies for production/use, characteristics of renewable energy, key methods for efficient production. Current/probable future. Impact on sustainable development. prereq: Junior or senior

BBE 4743. Nanobioengineering & Nanobiotechnology. (3 cr. ; Student Option; Every Spring)
This course will educate on the interdisciplinary areas of bionanotechnology/nanobiotechnology and nanobioengineering, including engineering principles and inherent technological applications. Prereq: Upper division in CSE or juniors and seniors in physical sciences, biological sciences and engineering (including CBS and CFANS) or equivalent or instructor consent.

BBE 4744. Engineering Principles for Biological Scientists. (; 4 cr. ; A-F or Audit; Every Fall)
Material/energy balances applied to processing systems. Principles of fluid flow, thermodynamics, heat, mass transfer applied to food and bioprocess unit operations such as pumping, heat exchange, refrigeration/ freezing, drying, evaporation, and separation. prereq: [Math 1142 or Math 1271], Phys 1101; intended for non engineering students

BBE 4753. Air Quality and Pollution Control Engineering. (3 cr. ; A-F or Audit; Every Spring)
Air quality and pollution control engineering systems. Air pollutant sources, emissions transformations, dispersion, fate and impacts. Introduction to air quality and pollution laws, regulations and permits. Control technologies including energy conservation, cyclones, electrostatic precipitators, fabric filters, absorbers, adsorbers, incinerators and biofilters. prereqs: BBE 3012, 3043, upper division CSE, graduate student or instructor consent. Credit will not be granted if credit has been received for CEGE 5561

BBE 4900. Intern Reports. (; 2 cr. [max 4 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Students participating in industrial or experiential learning assignment. Evaluation based on formal final report; coordinated with

faculty and industry advisor. prereq: [CSE or CFANS] student in BBE, instr consent

BBE 5001. Chemistry of Biomass and Biomass Conversion to Fuels and Products. (; 4 cr. ; A-F or Audit; Every Fall)
Chemistry of biomass. Sustainable utilization for biofuels/bioproducts. Bio-based materials, chemicals, energy. Environmental implications. Chemical principles/reactions underlying the structure, properties, processing, and performance of plant materials. prereq: Grad student or instr consent

BBE 5023. Process Control and Instrumentation. (; 3 cr. ; Student Option; Every Fall)
Fundamental principles in system dynamics/control. Emphasizes process systems and problems faced by process engineers. prereq: Grad student or instr consent

BBE 5093. Directed Study. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

BBE 5094. Directed Research. (; 1-5 cr. ; Student Option; Every Fall, Spring & Summer)
Advanced individual-study project. Application of engineering principles to specific problem. prereq: instr consent

BBE 5301. Applied Surface and Colloid Science. (; 3 cr. ; Student Option; Every Fall)
Introduction to surface/colloid science concepts. Surface tension, wetting, adsorption, capillarity. Formation/stability of sols, emulsions, and foams. Water solubility. Partition coefficients of organic species. Properties of both surfactants and water soluble polymers. Focuses on interdisciplinary applications.

BBE 5302. Biodegradation of Bioproducts. (; 3 cr. ; Student Option; Every Spring)
Organisms and their importance to bio-based products: deterioration, control, bioprocesses for benefit. prereq: Grad student or instr consent

BBE 5303. Introduction to Bio-based Materials Science. (; 3 cr. ; Student Option; Every Spring)
Principles of materials science, their application to bio-based materials. Project required.

BBE 5305. Pulp and Paper Technology. (; 3 cr. ; Student Option; Every Spring)
Pulping processes, fiber refining/processing, paper manufacturing, fiber/paper properties, paper recycling. Water requirements, effluent treatment. Chemical/mechanical pulping, pulp preparation, secondary fiber, de-inking, wet end additives. Lab problems/exercises supplemented by lectures. Online course.

BBE 5333. Off-road Vehicle Design. (4 cr. ; A-F only; Every Spring)
Mechanics involved in designing/testing off-road vehicles. Vehicle mechanics, traction, performance. Complexity/modeling of vehicle interaction with soil, muskeg, snow. Case study or literature review. Develop paper for publication. prereq: [[2001, 4303] or [AEM 2021, AEM 3031], [3012 or concurrent registration is required (or allowed) in 3012 or CEGE 3502 or concurrent registration is required (or allowed) in CEGE 3502], upper div CSE] or instr consent

BBE 5401. Bioproducts Separation and Purification Processes. (; 3 cr. ; A-F or Audit; Every Fall)
Unit operations of bioproducts engineering/manufacture. Project required. prereq: Grad student or instr consent

BBE 5402. Bio-based Products Engineering Lab II. (; 2 cr. ; A-F or Audit; Every Fall)
Unit operations laboratory exercises in bio-based products engineering/manufacture.

BBE 5403. Bio-based Products Engineering Lab I. (2 cr. ; A-F or Audit; Every Spring)
Laboratory exercises in bio-based products engineering. prereq: Grad student or instr consent

BBE 5404. Biopolymers and Biocomposites Engineering. (; 3 cr. ; A-F or Audit; Every Fall)
Structure/properties of biopolymers. Engineering of composites from biopolymers/plant-based materials. prereq: grad student or instr consent

BBE 5480. Special Topics. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

BBE 5513. Watershed Engineering. (; 3 cr. ; A-F or Audit; Every Fall)
Application of engineering principles to managing surface runoff from agricultural, range, and urban watersheds. Design of facilities and selection of land use practices for controlling surface runoff to mitigate problems of flooding and degradation of surface-water quality. prereq: 3023, upper div CSE or grad student

BBE 5523. Ecological Engineering Design. (; 3 cr. ; A-F only; Every Spring)
Application of ecological engineering to design of remediation systems. Artificial ecosystems, ecosystem/wetland restoration, constructed wetlands, biological engineering for slope stability, waste treatments. Restoring ecological service of watersheds. prereq: [[CHEM 1022 or CHEM 1062, CHEM 1066], BBE 3012, grad student] or instr consent

BBE 5535. Assessment and Diagnosis of Impaired Waters. (; 3 cr. ; A-F only; Every Fall)
Assessing impaired waters and developing TMDL for conventional pollutants. Preparing/communicating legal, social and policy aspects. TMDL analysis of real-world impaired waters problem. Field trip to impaired waters site. prereq: Grad student or instr consent

BBE 5608. Environmental and Industrial Microbiology. (; 3 cr. ; A-F only; Every Fall)
Use of microbes/enzymes to detoxify contaminants in field or in containment facilities. Contaminants, sources, fates. Biological organisms, pathways, catalysts utilized in bioremediation. Site inspection practices, bioremediation technologies, application in real-world situations. prereq: [BIOL 1001 or BIOL 1009], CHEM 1011

BBE 5713. Biological Process Engineering. (; 3 cr. ; A-F only; Every Spring)
Material/energy balances. Homogeneous reactions of bioprocess engineering and biological systems. Fermentation engineering, reactor design fundamentals. Filtration, centrifugation, separation, absorption, extraction, chromatography. Biorefining. Conversion of biomass into bioenergy, biochemicals, and biomaterials. prereq: [3033, [4013 or concurrent registration is required (or allowed) in 4013], or instr consent

BBE 5723. Food Process Engineering. (; 3 cr. ; A-F or Audit; Every Spring)
Food processing engineering. Applications of material balance, energy balance, fluid dynamics, and heat/mass transfer to refrigeration, freezing, psychometrics, dehydration, evaporation, non-thermal processing, and separation. Development/control for food products. prereq: [[4013 or concurrent registration is required (or allowed) in 4013], or instr consent

BBE 5733. Renewable Energy Technologies. (; 3 cr. ; A-F or Audit; Every Spring)
Energy security and its environmental, economic and societal impacts. Current and emerging technologies for production and use, characteristics of renewable energy, key methods for efficient production, current and probable future, and impact on sustainable development. prereq: Grad student or instr consent

BBE 5743. Nanobioengineering & Nanobiotechnology. (3 cr. ; Student Option; Every Spring)
This course will educate on the interdisciplinary areas of bionanotechnology/nanobiotechnology and nanobioengineering, including engineering principles and inherent technological applications. prereq: Instructor consent

BBE 5753. Air Quality and Pollution Control Engineering. (3 cr. ; A-F or Audit; Every Spring)
Air quality and pollution control engineering systems. Air pollutant sources, emissions transformations, dispersion, fate and impacts. Introduction to air quality and pollution laws, regulations and permits. Control technologies including energy conservation, cyclones, electrostatic precipitators, fabric filters, absorbers, adsorbers, incinerators and biofilters. Course Prerequisites Graduate student or instructor consent Credit will not be granted if credit has been received for CEGE 5561

Business Administration (BA)

BA 1001. Introduction to Analyzing Business Problems using Excel. (; 1 cr. ; A-F only; Every Fall & Spring)
BA 1001 introduces students to basic skills for analyzing data and presenting recommendations to management. In this class students work extensively with Microsoft Excel and are better prepared to use this popular tool in internships and upper division classes.

BA 1919. WHY BEFORE HOW: Thriving in a World of Increasing Expectations. (; 3 cr. ; S-N only; Every Fall)
We all want to thrive. But many of us are also feeling anxious and stressed out. Whether it?s dealing with difficult people or facing pressure to be successful and extraordinary, life today is not easy. This course offers the space to be yourself and investigates timeless guidance for creating a life that is meaningful, joyful and fulfilling. Instead of relying on life hacks and shortcuts to answer ?How do I succeed?? we will first ask ?Why am I doing this?? By better understanding ourselves, our lives and the minds of others, we will build skills for increasing our self-awareness, emotional agility, resilience, perspective-taking, and communicating with others. Following Friedrich Nietzsche?s wisdom that those who have a ?why? can overcome any ?how,? this class will prepare you to chart your path with purpose and overcome the inevitable obstacles that lay ahead.

BA 1990. Topics in Business. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics vary.

BA 3000. Career Skills. (; 1 cr. ; S-N only; Every Fall, Spring & Summer)
Career planning. Use of Carlson School of Management's Business Career Center. Awareness, knowledge, skills associated with career/job search process. prereq: CSOM [soph or upper div] major, MACC, MBT

BA 3900. Topics. (; 1-4 cr. [max 16 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics in business vary.

BA 3990H. Honors Topics. (; 1-4 cr. [max 8 cr.] ; A-F only; Periodic Fall & Spring)
Topics vary.

BA 3993. Directed Study. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Student-initiated project or directed study to be completed with a faculty member. prereq: Instrutor consent

BA 3999. Internship Seminar. (1 cr. [max 3 cr.] ; S-N only; Every Fall, Spring & Summer)
This course helps students integrate internship experiences with relevant assignments to create helpful next steps toward their career learning and development. prereq: Approved internship, instr consent

BA 4501. Carlson Funds Enterprise: Growth. (; 3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
Lectures, assignments, modules. Hands-on real-money experience through Golden Gopher Growth Fund. prereq: concurrent registration is required (or allowed) in MBA 6501, CSOM [jr or sr], approved application

BA 4502. Carlson Funds Enterprise: Fixed Income. (; 3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
Lectures, assignments, modules. Hands-on real-money experience through Golden Gopher Growth Fund. prereq: concurrent registration is required (or allowed) in MBA 6501, CSOM [jr or sr], approved application

BA 4503. Carlson Ventures Enterprise. (; 2-3 cr. [max 9 cr.] ; Student Option No Audit; Every Fall & Spring)
Carlson Ventures Enterprise (CVE) is a dynamic, experiential learning program built around a real-world curriculum developed and presented by active industry professionals. Classes draw heavily on industry speakers, panels and ?real-time? business cases. CVE offers highly-motivated, entrepreneurially minded associates an opportunity to develop critical analysis skills for evaluating any new business opportunity, whether from inside a Fortune 500 company or a start-up. By the end of the course associates will know how to assess the potential of new business ideas, and they will be experienced in the creation of professional written and oral reports to support strategic decisions and funding initiatives. prereq: concurrent registration is required (or allowed) in MBA 6503, CSOM [jr or sr], approved application

BA 4504. Carlson Consulting Enterprise. (; 3 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Spring)
Connects cutting-edge ideas/technologies from classroom to real problems presented by clients. Students work collaboratively with clients to integrate strategy/technology. How to lead complex change initiatives. prereq: concurrent registration is required (or allowed) in MBA 6504, CSOM [jr or sr], approved application

BA 4505. Brand Enterprise. (; 3 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Spring)
Students assist companies/organizations with marketing/brand challenges. Applying theory and industry best practices. Working collaboratively in real world environment. Critical thinking, applied marketing skills. prereq: concurrent registration is required (or allowed) in MBA 6505, CSOM [jr or sr], approved application

BA 4992V. Honors Thesis Seminar. (WI; 3 cr. ; A-F only; Every Fall)
This course provides a foundation for how to conduct individually-pursed research with a focus on writing and methods. While it is designed to support Carlson School students writing their honors thesis, students do not need to continue with a thesis to successfully complete the course. In order to both develop your individual thesis as well as learn research methods and writing techniques over the course of a single semester, there will be parallel sets of assignments: one for your thesis (individual) and one for a practice thesis (group). During the first part of the course, your individual thesis project will be emphasized, focusing on finding a thesis topic related to the research of Carlson School faculty who will be supervisors for this academic year. Starting partway through the course, you will be paired with a group of students to work on a practice thesis in which methods, statistical analysis, and writing results are emphasized using pre-specified datasets. Writing is integrated fully into the course. You will be instructed in writing pertinent to research proposals and scholarship, including problem statements, annotated bibliographies, literature reviews, methodology, and reference lists. prereq: Senior honors student

BA 4994H. Directed Research. (; 1-4 cr. ; A-F only; Every Fall & Spring)
Honors directed research. prereq: Honors

Business Law (BLAW)

BLAW 3058. The Law of Contracts and Agency. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Origin of law, its place in and effect on society; history and development of law; system of courts; legal procedure. Law of contracts as the basic law affecting business transaction. Laws affecting the sale of goods and contracts and the law of agency.

BLAW 3059. Real Estate Law. (2 cr. ; A-F only; Every Fall)
Every business owner or manager inevitably will be involved with purchasing, selling, owning, leasing, zoning, taxing, mortgaging and financing real estate. This course provides the basic tools to understand all aspects of real estate and to spot issues that require legal counsel.

BLAW 3061. Business Law Basics. (2 cr. ; A-F only; Every Fall & Spring)
This course provides a broad background in the fundamentals of many business law topics that are important to any businessperson. NOTE: This course is designed for students who do not have knowledge or experience with any aspect of business law. There is no prerequisite for this course. The goal is to provide basic concepts that can be used throughout your career to spot legal issues, identify potential concerns, and with the aid of counsel, solve or avoid problems. General topics include: various legal entities in which business can be conducted, tort law (with emphasis on negligence), real estate law, the law of agency, intellectual property (patents, copyrights, trade secrets and trademarks), warranty law, product liability, employment law, certain discrimination laws (including Minnesota?s fairly recent protections for women in the workplace), alternative dispute resolution and administrative law. Throughout the course, we will examine the impact of the Supreme Court on American business. NOTE: Students who previously took BLAW 3058 (4 credit course) should NOT take this course.

BLAW 3062. Contract Law and Corporate Regulation. (2 cr. ; A-F only; Every Fall & Spring)

This course highlights topics that are important to any business major, with particular emphasis on publicly-traded companies. NOTE: This course is designed for students who do not have knowledge or experience with any aspect of business law. There is no prerequisite for this course. General topics include: (1) the law of contracts and transactions involving the sale of goods, (2) secured transactions (how creditors can use a debtor?s assets as collateral to secure indebtedness), and (3) the basics of bankruptcy law. Public company subjects include: pros and cons of going public, the IPO process, federal securities laws and SEC regulations regarding public company reporting requirements, insider trading, the Sarbanes-Oxley Act of 2002 and its impact on corporate governance, trends in shareholder democracy rights and shareholder activism, and the role of boards and audit committees. Throughout the course, we will examine the impact of the Supreme Court on American business. NOTE: Students who previously took BLAW 3058 (4 credit course) should NOT take this course.

CAPA Barcelona Study Abr Prgm (BCLA)

BCLA 1001. Beginning Spanish I. (GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed to provide students the vocabulary and grammar necessary for basic expression in Spanish using a communicative approach. In this course, students will learn to introduce themselves, talk about daily routine and plans, discuss past events, use vocabulary related to food, family, and everyday life and activities, negate, and use other expressions necessary for basic communication such as greetings, ordering at a restaurant, or asking for directions.

BCLA 1002. Beginning Spanish II. (GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
After completing this course, the student will understand phrases and expressions of frequent use related to areas of experience that are especially relevant to him (basic information about himself and his family, purchases, places of interest, occupations, etc.). Will be able to communicate when carrying out simple and daily tasks that do not require more than simple and direct exchanges of information on issues that are known or usual. Can describe in simple terms aspects of their past and their environment as well as issues related to their immediate needs.

BCLA 1003. Intermediate Spanish I. (GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed to improve a student?s ability to communicate in Spanish. Building on knowledge from previous courses, this course will introduce students to grammatical topics such as the subjunctive mood, the imperative mood, the pluperfect of the indicative, and expressions regarding the passage of time. This class is based on the communicative approach and stresses the use of these grammatical structures in real and relevant communication.

BCLA 1004. Intermediate Spanish II. (GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
After completing this course, the student will understand extended speech and lectures (TV, movies, newspapers,...). Will be able to communicate with a degree of fluency that will let students interact with locals with spontaneity. The information presented will be precise when talking in a field of interest and quite clear when writing or speaking in other range of subjects.

BCLA 1101. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 1102. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 1103. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 1104. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 1105. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 1501. Introduction to Photography. (AH,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed for beginning students in photography, and specifically presents digital camera techniques as a means of personal expression. Observing/capturing, digital process, printing and screen presentation will be addressed in relation to specific subjects, intentions and aesthetic judgements. The particular study abroad experience of each student will be one of the main focuses throughout the semester. Students are expected to bring a digital camera and a laptop with some means of editing (although computers and basic Photoshop is available in the computer lab.)

BCLA 3001. Nationalism in Comparative Perspective. (CIV,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course studies the relationship between states and nations in both a theoretical and comparative perspective with a particular focus on the Catalan, Basque and Spanish experiences. It analyzes state building processes and the development of nationalism, as well as the social, economic and technological conditions behind its emergence, transformation and contrasting discourse. The course aims at providing a solid theoretical background on the subject of nationalism as well as introducing the students into the social and political reality that permeates in Spain?s daily life and shapes Spaniard?s political mind-frames and identities.

BCLA 3002. Global Marketing. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course provides an exploration of basic knowledge of global marketing, focusing on the impact of environment on the strategies used by firms, and the understanding of consumer behavior management as it relates to the development and implementation of global marketing strategies. Worldwide business represents real opportunities for a firm but also creates difficulties, challenges and new ways of implementing marketing. Global marketing is a specific kind of marketing applied to inter-national firms in order to implement the same strategy within the entire market taking into account cultural, economic, social, political, etc., specificities for each area. This course will provide the basic knowledge of global marketing focusing on the impact of environment on the firm strategy, the development and implementation of a global marketing strategy and the understanding of consumer behavior management in a global strategy. Case studies applied to worldwide business contexts as well as more specific European contexts will provide concrete illustrations for the students.

BCLA 3003. Intercultural Management. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed to introduce students to concepts and fundamentals of international management. The course will consider aspects of management within an international and culturally complex environment, while considering the business influences within the global workplace. Students with or without prior international management knowledge will benefit from the course. Organizational effectiveness demands that personnel do the

right things efficiently. Therefore, the role of management is to strive for and maintain the goals of the organization. Being an effective manager is not just telling others what to do. It is also about effective leadership, training, and communication. Having effective managers can be a cost saving tool for all organizations of all sizes. Corporation executives, supervisors, and managers are aware of the importance of and difficulty in finding and retaining highly skilled employees (a time-consuming role of management). Today's managers need a systems-view of the organization. This course will help you think of the organization as a system rather than as a work unit where tasks are performed. Most of you will, after graduating, become supervisors and managers and be required to provide training and leadership for your personnel. In just about any organization, you will be working with people who will have a different cultural background that your own, you may be working as an expatriate in a different country or you may experience any of a number of multicultural challenges. This course will help you prepare for these eventualities.

BCLA 3004. Advertising and Society. (CIV; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course introduces students to the linkages between advertising and society. It is premised on the belief that advertising helps shape human attitudes and behaviors, just as the latter two in turn help direct and shape advertising. However, the emphasis in this course is firmly on advertising as a shaping agent?how it influences individuals and societies, the dynamic nature of the relationship, and the impacts (both positive and negative) that advertising may have on individuals and societies. It takes a critical and dispassionate view of advertising rather than a managerial or practitioner?s view. Various criticisms of advertising are flagged, and these are used as a basis for further coverage and discussion of the criticisms and issues raised.

BCLA 3005. Analyzing and Exploring the Global City. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Cities around the world are striving to be ?global,? and Barcelona, the capital of Catalunya, is one of the largest and most cosmopolitan cities in Spain. It is globally renowned for its art and architecture, possessing no fewer than nine UNESCO World Heritage sites, and has become a major destination for global tourism. This interdisciplinary course examines the emergence of this elegant, creative city as Spain?s gateway to the Mediterranean, and analyzes its history and evolution since its foundation by the Romans. Students will explore the role of population dynamics, industrial change, and globalization in shaping the city and the lives of its inhabitants, examining the ways in which the interplay of urbanism, politics, and society has addressed challenges of social, political, and technological change in the past and today. The course also traces the changing nature of Barcelona?s relationship with the rest of Spain, Europe, and the wider world. Topics will include ancient and Medieval Barcelona; nationalism and innovations in art and architecture; the role of the 1992 Olympics as a catalyst for urban regeneration; the impacts of gentrification, tourism, and the recent economic crisis on the city and its inhabitants; and future scenarios of urban change.

BCLA 3006. Architectural History of Spain. (HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will look at the history of architecture and urban design in Spain. Beginning with a brief introduction to the ancient styles (from the first civilization of the Iberian Peninsula), it will focus upon developments in architecture and urban planning in Spain from the 1st Century AD to the present. Special attention will be paid to the 19th and 20th Centuries in Barcelona, and several relevant field visits will be made.

BCLA 3009. Media and Conflict. (CIV,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The course will provide a structured approach to address different media systems. It will explore the dynamics of news, politics, conflicts and freedom of the press. Focusing on ongoing, international crises of global importance, we will examine how various international media report on topics including armed conflicts, human rights abuses. Study the dynamics governing news media environment and structures. We will try to understand why different audiences from different cultural spheres perceive the same news in sometimes a diametrically opposed way. We will examine the rich arsenal of repression tools used by authoritarian and even democratic regimes to suppress press freedom or spin news to their advantage. We will look at the ways and means by which courageous journalists try to circumvent these obstacles.

BCLA 3011. The Birth of Modern Art: Matisse, Picasso, Dal?. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The work of these three international artists with distinct cultural roots is explored on an individual basis within the wider framework of European art movements. In each case, we will study the acceptance and/or rejection of tradition, the interaction with French art and artists, and personal experience. We will also pay attention to the role of both outside stimuli (war, relationships) and inner forces (memory, imagination). The course will include course related excursions to the Picasso Museum, the MNAC (Catalan National Museum of Art) as well as a trip to the Dal? Theatre Museum in Figueres.

BCLA 3013W. Writing the City. (GP,WI,LITR; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The course explores the craft of creative writing in relation to the city and investigates the particular challenges of writing about place. Students will examine different aspects of the city in relation to Barcelona narratives, including the old city, travel, urban spaces, solitude, politics, ethnicity, particular boroughs, and characters (both fictional and real), as well as making use of practical exercises and fieldwork.

BCLA 3014. Spain As Seen Through Its Movies: 1980s to Today. (AH,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The main goal of this course is to provide students with a general understanding of Spain, taking into consideration its recent past, but focusing mainly on some of the most relevant and controversial issues of the current situation. The use of movies as a vehicular tool allows not only for the introduction of the cultural factor, but also the very Spanish perspective(s) that helps explain how the country sees and understands itself. The course will address the following general questions: a) what it means to speak of a "national cinema;" b) how cinema constructs and/or contests of his or her story; c) cinema's impact on shifting notions of what constitutes the human condition; d) how the formal qualities of cinematic narrative shape on-screen stories; e) where and how issues of gender, sexuality, class, and ethnicity surface in cinematic articulations of the relationship between national identity, global trends, and personal history. There are five sections or blocks to this course. The first block will cover the Spanish Civil War and the subsequent dictatorship, indispensable to understand the last 40 years of democracy in Spain. The second block is almost a monography to the figure of Pedro Almod?var, his time, and the ?Espa?a? his movies depict. The third focuses on the genre of horror, very rich in the recent Spanish production and quite ?imitated? by Hollywood. These last two blocks serve as a good opportunity to reflect about the political/national/identity aspects of the cinema industry. In an attempt to reverse the perspective, the last two blocks approach current Spanish issues with an important impact in the society as a whole and its citizens as individuals. The fourth block discusses Spanish politics and its most recent developments. And the fifth one is a gender approach to the demographics of the country.

BCLA 3015. Capturing Barcelona through Photography. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will explore digital photography as a tool to view different aspects of Spanish society (and ourselves within that society) through various photographic exercises and assignments. Students will receive the tools to read photography and construct an idea through images. At the end of the course the students will produce a portfolio of the work done. Lectures will cover the History of Photography, with a special attention to photo-reportage, Italian photographers, technical aspects related to photography production. The course introduces technical process of digital photography, from camera operation and the essential techniques of image capture with camera, image management with imaging related software. Classroom discussions and assigned readings will help student develop the critical skills used to understand how photographs function aesthetically

and conceptually as how they are used in contemporary society and culture.

BCLA 3048. Transportation and Logistics Management. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
In today?s global supply chains, manufactured products often travel across multiple countries and multiple states, using multiple modes of transportation, before reaching final customers. Along the way, these products are processed at a variety of inventory transfer points, and reconfigured and combined with other products with the goal of arriving intact at the right place and right time. Effectively managing these flows requires understanding the underlying economics of weight, volume, distance, and velocity. It requires taking an end-to-end view of the logistics and transportation network to understand how changes in one link impact others. It also requires openness to change, including adopting new network designs and other innovations that promise to improve processes in fundamental ways. This course uses a combination of lectures, case discussions, interactive classroom activities, and guest speakers. Students are expected to have read any assigned readings and cases before the corresponding class session so they are prepared to actively take part in class discussion.

BCLA 3101. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 3102. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 3103. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 3104. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 3105. Pompeu Fabra University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Barcelona study abroad program to represent a course taken at Pompeu Fabra University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

BCLA 3375. Global Internship: Barcelona. (3-6 cr. ; Student Option; Every Fall, Spring & Summer)
The Global Internship Course (GIC) provides a unique and innovative opportunity for students to engage in an internship (and living abroad experience) while supported by academic in-class and online educational sessions to further develop their personal and professional skills while earning academic credit. GIC students also partake in out-of-class guided and self-guided activities and excursions that have been devised to enable them to become more comfortable with, and knowledgeable of, their internship locations/neighborhoods. Furthermore, a day-long field trip illustrates how socio-political and economic factors, such as the effects of housing costs in global cities, necessitate commuting and changing work practices, such as flexible working hours and working remotely that embody best practice in well-being. Field excursions vary depending on location and may also include a focus on, for example, corporate social responsibility and sustainability. The GIC fits in with CAPA's philosophy and practice of enabling students to learn about the social and cultural context of their internship placement and the host region and country, as well as other GIC themes, through comparative global analysis. At times, this analysis will be facilitated through a small selection of CAPA Masterclasses given by leading professionals from a diverse range of fields. The in-class active learning approach gives students the opportunity to discuss and analyze theories and models of work, organizational behavior, and management in a cross-cultural context.

BCLA 4061. Marketing and Distribution Channels. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Marketing channels are sets of interdependent organizations involved in the process of making a product or service available for use or consumption. Marketing and distribution channels management is an essential aspect of commercial activities. In today?s ever-more complex and challenging competitive scenario, it is necessary for organizations to know how to effectively select and manage marketing channels so that they can create partnerships that are capable of generating value and trust and avoiding conflicts. As Peter Drucker has said, ?The greatest change will be in distribution channels, not in new methods of production or consumption.? Choosing the right channels, convincing them to carry your merchandise, and getting them to work as partners is a major challenge. Too many companies see themselves as selling to distributors instead of selling through them. This course will help students learn how to develop marketing channel plans, which enable an organization to increase sales, margins, and levels of collaboration with channel partners.

BCLA 4622W. International Finance. (GP,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The International Finance module provides an understanding of finance in the international context. In a globally integrated world, it has become imperative to trade, invest, and conduct business operations internationally. This course exposes students to the opportunities and risks associated with international finance. As the world has become more integrated due to deregulation of financial markets, product innovation, and technology, capital markets have kept pace with this integration. Building upon the understanding of theoretical concepts of finance and their adaptation to the international context, the study of international finance has become essential. The course coverage includes historical perspectives and foundations of international finance, the foreign exchange markets and exchange rate determination, exposure management, and financial management of the multinational firm. The course also helps students examine the current economic landscape through discussions of current economic and political development and their impact on international finance.

Carlson Executive MBA (CMBA)

CMBA 5554. International Residency. (1.5 cr. ; A-F only; Every Spring)
Students travel to an international location for nine days, engage in discussions with international colleagues, to apply program concepts and develop broader sensitivity to cultural/social differences. Pre-trip preparation, on-site disucssion, and trip assignment are also required. Held in late March.

CMBA 5625. Entrepreneurship and Innovation. (3 cr. ; A-F only; Every Spring)
Entrepreneurial role of employee/management in increasing organizational value through creation/formation of new businesses, products, or markets within entities ranging from early stage companies to social ventures to F500 corporations.

CMBA 5710. Leadership. (1.5 cr. ; A-F only; Every Fall)
Self-awareness/insight concerning personal leadership/core values. Increase capabilities to understand potential personal derailment patterns/create effective strategies to address challenges. Develop lifelong executive leadership practices/habits for high performance in demanding circumstances.

CMBA 5711. Negotiation. (; 3 cr. ; A-F only; Every Fall)
Securing agreements between two or more parties who are interdependent and are seeking to maximize their own outcomes. Negotiation in various settings. Simulations, role-playing, cases.

CMBA 5712. Information Technology. (1.5 cr. ; A-F only; Every Fall)

Course prepares you with an inside-out and an outside-in perspective of how information technology is disrupting a variety of industries, how to compete in such an environment and how to strategically manage the IT function within companies to have an efficiency-innovation duality. Key principles covered in the class are developing a state-of-the-art IT strategy, getting first-hand exposure to ERP systems and learning the organizational changes involved in implementing such systems, applying disruptive and big-bang theories of IT enables disruption and learning the nuances of platform competition and multi-sided markets to fight such disruption.

CMBA 5713. Managerial Accounting. (; 3 cr. ; A-F only; Every Fall)
How to analyze accounting for management decisions. Planning/control. Transfer pricing, performance measurements, cost behavior, cost allocation, activity-based costing, standard costs.

CMBA 5714. Advanced Marketing. (; 3 cr. ; A-F only; Every Fall)
Product markets in which organization should compete. Sustainable competitive advantage. Matching marketing strategy with environment. Coordinating marketing/business functions. Organizing/managng marketing process. Cases.

CMBA 5715. Advanced Financial Management. (; 3 cr. ; A-F only; Every Fall)
Executive-level corporate financial policy. Rigorous case-oriented approach. Students apply principles of finance on their own initiative.

CMBA 5721. Advanced Management Topics. (1.5 cr. [max 3 cr.] ; A-F only; Every Spring)
Topics reflects strengths, talents, and interests of class. Topics integrate different aspects of curriculum while not being limited by specific area/paradigm.

CMBA 5722. International Business. (; 3 cr. ; A-F only; Every Spring)
Developing an integrative framework for international activities of firm. How international environment constrains decision-making. How currancy prices are determined. Managing exchange risk.

CMBA 5723. Ethics. (1.5 cr. ; A-F only; Every Fall & Spring)
Role of ethics in corporate strategy. Stakeholder management, individual/collective responsbility, international business ethics. Business's responsibility to the environment. Truthful/tasteful advertising. Obligations to local community. Managing diverse workforce.

CMBA 5724. International Residency. (; 1.5 cr. ; A-F only; Every Spring)
Students travel to international location for 11 days. Discussions with international colleagues. Applying program concepts. Sensitivity to cultural/social differences. Pre-trip preparation, on-site disucssion, trip assignment.

CMBA 5810. Introduction to Statistics and Business Analytics. (3 cr. ; A-F only; Every Fall)
This course focuses on the use of data to solve business problems and the development of skills necessary to (1) formulate a management problem as a statistical problem; (2) collect appropriate data and perform fundamental procedures of statistical analysis; and (3) to interpret, critically evaluate, and implement the results of the statistical analysis. In particular, the student should be able to: generate and use basic graphical and numerical descriptive methods; apply basic estimation and testing procedures; estimate and interpret the parameters of simple and multiple regression model; to test the utility of the model and to use it for estimation and prediction; think statistically about issues facing her/his organization; recognize when statistical methods are effective, and when they are not; and to translate, communicate, and critically evaluate the results of statistical analyses.

CMBA 5811. Financial Accounting. (3 cr. ; A-F only; Every Fall)
Students learn about the accounting system used by firms to measure and report their economic performance and financial position to external parties. Students analyze corporate financial reports to discover the impact of significant economic events. Discussions and cases focus on the role of financial reporting standards in informing financial intermediaries and contributing to the efficient allocation of capital in a modern economy.

CMBA 5812. Organizational Behavior. (3 cr. ; A-F only; Every Fall)
Course's main purpose is to prepare you to successfully engage and lead people to achieve organizational goals. Effective managers must not only develop winning strategies, but they must also implement them. Doing so requires a thorough understanding of organizational behavior. Broadly speaking, organizational behavior is the systematic study of how people behave in organizational settings. This course is designed to develop your understanding of the complexity of orgs and how they affect behavior, build your self-knowledge and people-leadership skills, and help you learn and apply appropriate tactics and tools to improve organizational functioning and facilitate personal career success. Course topics include: organizational (e.g. structure and culture), interpersonal (e.g. power and influence, social networks, conflict), and individual (e.g. decision making, motivation) aspects of organizational behavior.

CMBA 5813. Competing In The Digital Age. (1.5 cr. ; A-F only; Every Fall)
Course prepares you with an inside-out and an outside-in perspective of how information technology is disrupting a variety of industries, how to compete in such an environment and how to strategically manage the IT function within companies to have an efficiency-innovation duality. Key principles covered in the class are developing a state-of-the-art IT strategy, getting first-hand exposure to ERP systems and learning the organizational changes involved in implementing such systems, applying disruptive and big-bang theories of IT enables disruption and learning the nuances of platform competition and multi-sided markets to fight such disruption.

CMBA 5814. Economics. (1.5 cr. [max 3 cr.] ; A-F only; Every Fall)
The goal is to improve corporate decision-making by developing better understanding of the economic environment. Emphasis is strategic, not theoretic (this is not a standard macro course.) We shall consider two primary kinds of economic phenomena (and models): i. long-run economic growth; ii. business cycles. Also and importantly, we will learn about what a central bank does and spend some time on the current world financial/macroeconomic mess. How could we do otherwise? Students will learn appropriate tools to analyze these phenomena and apply them to their own decision-making environs, both organizational and personal.

CMBA 5815. Marketing Management. (3 cr. ; A-F only; Every Spring)
This is a study of management of the marketing function. We strive for an understanding of foundational marketing concepts and of the skills needed for strategy development. We also consider the importance of integrating financial data, operational factors, and human resource issues along with marketing research pertaining to product offering decisions, distribution channels, pricing and communication.

CMBA 5816. Strategic Management. (3 cr. ; A-F only; Every Spring)
Course provides an integrated, top management viewpoint for business students. It frames the functional courses in the CEMBA curriculum by providing a 'total' business perspective. The course objective is to develop analytic skills and deep understandings in identifying key issues and formulating and implementing appropriate strategies for creating and sustaining a competitive edge in complex business situations. The course will familiarize students with the most current theories, concepts, and techniques of strategic management using a combination of readings, case discussions, presentations and videos. Student progress will be assessed through class participation, an in-class exam, and a group project comparing the strategies of two competing firms.

CMBA 5817. Financial Management. (; 3 cr. ; A-F only; Every Spring)
Students apply concepts of risk, return, and valuation to decisions that a corporate financial officer or person in small business must make about sources/uses of funds during changing financial markets.

CMBA 5818. Supply Chain and Operations. (3 cr. ; A-F only; Every Spring)
A majority of the people and physical assets of a company are involved in operations. The operations function represents the physical core of every company: The systems and processes that generate the goods and services to be sold to customers. World-class operations can lead to a significant and enduring competitive advantage. Failing operations mean low productivity and

bad press at best, and company failure at worst. Understanding operations means understanding processes and supply chains. This course is designed to develop a basic framework to comprehend key design decisions and trade-offs within that context. As such, the course encompasses both manufacturing and service operations. Course also highlights why successful supply chain and operations management has to be strategic in nature, and how the operations function relates to other business functions such as marketing or product development.

CMBA 5820. Negotiation Strategies: Creative Solutions for Difficult Problems. (3 cr. ; A-F only; Every Fall)
Negotiation is the art and science of securing agreements between two or more parties who are interdependent and who are seeking to maximize their own outcomes. As such, this course deals with understanding the behavior of individuals, groups, and organizations in the context of competitive situations. We focus on understanding both the theory and process of negotiation in a variety of settings. This course is designed to be relevant to the broad spectrum of negotiation problems that are faced by managers and professionals. It is designed to complement the technical and diagnostic skills learned in other courses in the program. A basic premise of the course is that while a manager needs analytical skills to discover optimal solutions to problems, a broad array of negotiation skills are needed to get these solutions accepted and implemented. This course will allow participants the opportunity to develop these skills experientially and to understand negotiation in useful analytic frameworks. As such, considerable emphasis will be placed on simulations, role-playing, and cases.

CMBA 5821. Managerial Accounting. (3 cr. ; A-F only; Every Fall)
This course presents the topic of management accounting in depth. The purpose of management accounting is to provide information to management for costing products and decision making as well as for planning, controlling, and evaluating business activities. The student who successfully completes this class will be able to identify a managerial issue and create a solution to the problem.

CMBA 5822. Applied Leadership. (1.5 cr. ; A-F only; Every Fall)
The course objectives are to build stronger self-awareness and insight concerning personal leadership and core values, increase capabilities to understand potential personal derailment patterns and create effective strategies to address these challenges, better nurture and leverage strengths for executive leadership performance, effectively coach and motivate others as a key executive leadership attribute, and develop deeper lifelong executive leadership practices and habits for high performance in demanding circumstances. prereq: CMBA student

CMBA 5823. Competing Globally. (3 cr. ; A-F only; Every Fall)
In this course we explore the many faces of global competition. We challenge the assumptions that global strategy is a precursor to success by exploring a set of complex forces that drive firms to internationalize. The course places special emphasis on emerging markets, given that they are home to most of the global growth and population, as well as institutional voids. We focus on factors that determine strategic choices firms make as they build their international presence, by exploring how firms: build international presence by selecting countries, and modes of entry; benefit from national competitive advantage in developed and emerging markets; diagnose and address cultural challenges of working across borders, organize to share knowledge across borders; build and sustain their multifaceted global legitimacy; collaborate across borders; prepare their managers to address cultural, personal, and career challenges in expatriate roles and on global teams.

CMBA 5824. Corporate Responsibility & Ethics. (1.5 cr. ; A-F only; Every Fall)
In this course we will explore both ethical challenges in the contemporary business environment as well as the strategic opportunities offered by corporate social responsibility. Students will conduct stakeholder analysis, apply ethical principles, consider alternatives, and recommend and defend an "ethical" final decision. We will seek to answer the question "can business do good, and also do well?"

CMBA 5825. Strategic Marketing. (3 cr. ; A-F only; Every Spring)
Marketing begins and ends with the buyer. Hence, marketing strategy is the study of delivering value to buyers in a manner that exceeds the value proposition of marketplace rivals, using both internal and external resources. From determining consumer needs to assuring customer satisfaction, a clear understanding of buyer behavior is critical to the successful formulation and implementation of marketing strategy. To that end, this course is designed to provide prospective general managers the intellectual tools necessary to design actionable marketing strategies. There will be a strong emphasis on managerial action and multiple theoretical perspectives will be discussed.

CMBA 5826. Corporate Strategy. (1.5 cr. ; A-F only; Every Spring)
This course focuses on the strategic management of firm scope (i.e., choosing what your firm does and does not do). It provides understanding about strategic choices such as outsourcing or ?insourcing? activates and entering or leaving lines of business. We develop and employ a set of tools that provide a disciplined way to investigate these issues. Why companies exist, notion of added value, how companies add value through resources and incentives to develop resources, why a company would participate in more than one line of business, and what considerations should guide corporate renewal.

CMBA 5827. Advanced Financial Management. (3 cr. ; A-F only; Every Spring)
Financial Management introduced the theory of corporate finance and the application of value creation principles to, mainly, business operating decisions at the level of the project or initiative. This course moves on to consider decisions at the firm level. Among the questions addressed in this course are how best to measure overall firm performance, how to best finance the company, including debt versus equity questions, when to include options in the firm?s financing arrangements, when to lease resources rather than buy them, when to pay a dividend and/or repurchase shares and whether mergers and acquisitions generate value added.

CMBA 5828. International Residency - Study Abroad. (1.5 cr. ; A-F only; Every Spring)
Students travel to an international location for 9-10 days. This provides the opportunity to engage in discussions with international colleagues, apply program concepts, and develop a broader sensitivity to cultural and social differences. Pre-trip preparation, assignments, on-site discussions and activities, and post-trip assignments are required.

CMBA 5829. International Residency ? Global Team Project. (1.5 cr. ; A-F only; Every Spring)
The Global Team Project (GTP) provides Carlson School Executive MBA students with the unique opportunity to work in a collaborative team environment across cultures, industries, and markets alongside students from our Vienna Executive MBA program and our China Executive MBA program. As participants in the GTP, students develop advanced skills in teamwork, cross-cultural collaboration, and business plan development within a dynamic environment shaped by academic rigor and the demands of real-world international business.

CMBA 5830. Advanced Management Topic Elective: Power & Influence. (; 1.5 cr. ; A-F only; Every Spring)
Elective courses are offered across cohorts on preference basis. Course topics may change from year to year and can cover a variety of areas including entrepreneurship/innovation, strategy, IT, and others.

CMBA 5831. Advanced Management Topic Elective: Entrepreneurship & Innovation. (; 1.5 cr. ; A-F only; Every Spring)
Elective courses are offered across cohorts on preference basis. Course topics may change from year to year and can cover a variety of areas from entrepreneurship/innovation, strategy, IT, and others.

CMBA 5832. Advanced Management Topic Elective: Business Analytics for Competitive Advantage. (; 1.5 cr. ; A-F only; Every Spring)
Elective courses are offered across cohorts on preference basis. Course topics may change from year to year and can cover a variety of areas from entrepreneurship/innovation, strategy, IT, and others.

CMBA 5833. Advanced Management Topics Elective - Healthcare Innovations. (; 1.5 cr. ; A-F only; Every Spring)

Elective courses are offered across cohorts on preference basis. Course topics may change from year to year and can cover a variety of areas from entrepreneurship/innovation, strategy, IT, and others.

Cellular/Organismal Physiology (COP)

COP 4793W. Writing Intensive Directed Studies. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. One main feature of this course is that the student will receive writing instruction and the written output of the course will be revised during the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

COP 4794W. Writing Intensive Directed Research. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor.

COP 4993. Directed Studies. (1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

COP 4994. Directed Research. (1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a Research/Directed Studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

Center for Allied Health Prog (CAHP)

CAHP 5110. Foundations of Interprofessional Communication and Collaboration. (; 1 cr. ; S-N only; Every Fall)
Interprofessional approach to health care. Directed group activities in five two-hour sessions: personal/professional image; teamwork, self/peer assessment; health professions; professional identity/integrity; relationships between professions and those they serve. Includes online modules. prereq: Enrolled CLSP or OT student

Chemical Engineering (CHEN)

CHEN 1001. Advances in Chemical Engineering and Materials Science. (; 1 cr. [max 2 cr.] ; S-N or Audit; Every Fall)
Survey of important advances in chemical engineering, materials science/engineering. Design problems, career opportunities. Lectures, demonstrations, interactive exercises. prereq: Recommended for [chemical engineering, materials science/engineering] majors

CHEN 1901. Chemical Engineering & Society. (; 1 cr. ; S-N only; Every Spring)
The goal of this freshman seminar is to provide students with a background on what chemical engineers do and how their skills are being employed to address some of the most pressing technological issues in society today.

CHEN 2001. Material and Energy Balances. (4 cr. ; A-F or Audit; Every Fall)
Description/analysis of chemical engineering systems. Units/dimensions, materials balances on systems with/without chemical reactions, elementary phase equilibria/diagrams, energy balances. Elementary treatment of multistage steady-state equilibrium operations. prereq: concurrent registration is required (or allowed) in CHEM 2301 or equiv., concurrent registration is required (or allowed) in MATH 2374 or equiv., concurrent registration is required (or allowed) in PHYS 1302 or equiv., CSE student, C- or better in all pre-reqs

CHEN 2594. Directed Research Lower Division. (; 1-4 cr. [max 6 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Independent lab research under faculty supervision for students not yet taking junior level ChEn courses. prereq: instr consent, DUGS consent

CHEN 3005. Transport Phenomena: Momentum and Heat. (4 cr. ; A-F only; Every Fall)
Fluid statics/dynamics. Applications to chemical engineering systems, conduction, diffusion. Principles/applications of heat transfer in chemical engineering systems. prereq: [2001 or [transfer student, dept consent]], [Math 2373 or equiv.], upper div ChEn major, C- or better in all pre-reqs

CHEN 3006. Mass Transport and Separation Processes. (4 cr. ; A-F only; Every Spring)
Introduction to principles of mass transfer. Mass transfer operations used in separation processes, unit operations. prereq: [2001 or 4001], [3005 or 4005], [3101 or 4101], [upper div ChEn major or dept consent], C- or better in all pre-reqs

CHEN 3041. Industrial Assignment I. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering co-op program. Formal report on technical project

related to industrial work. prereq: ChEn upper Div, completion of required courses in ChEn prog through fall sem of 3rd yr, GPA of at least 2.80, registered in co-op prog

CHEN 3045. Chemical Engineering Industrial Internship. (1 cr. [max 2 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Industrial internship, three to eight months. Formal report on technical project related to industrial work. prereq: ChEn Upper Division. GPA of at least 2.8.

CHEN 3101. Chemical Engineering Thermodynamics. (4 cr. ; A-F only; Every Fall)
Applications of thermodynamics/chemical equilibrium to problems in chemical engineering. prereq: 2001, CHEM 4501, [Math 2373 or equiv.],[upper div ChEn major or dept consent], C- or better in all pre-reqs

CHEN 3102. Reaction Kinetics and Reactor Engineering. (4 cr. ; A-F only; Every Spring)
Chemical equilibrium/chemical kinetics applied to chemical engineering systems. Behavior/design of chemical reactors, interaction between chemical/physical rate processes. Mathematical modeling, design of reactors. prereq: [2001 or 4001], [3101 or 4101], [upper div ChEn major or dept consent], C- or better in all pre-reqs

CHEN 3201. Numerical methods in ChEn applications. (3 cr. ; A-F only; Every Spring)
Numerical methods/applications in heat/mass transfer, advanced chemical engineering applications. prereq: [2001 or 4001], [3005 or 4005], [3006 or 4006 or concurrent registration is required (or allowed) in 3006 or concurrent registration is required (or allowed) in 4006], [upper div ChEn major or dept consent], C- or better in all pre-reqs

CHEN 3401W. Junior Chemical Engineering Lab. (WI; 2 cr. ; A-F only; Every Spring)
Efficient design, structure, measurement, planning, analysis, presentation of experiments/results. Energy balances, fluid flow, heat/mass transfer. Design of new systems using data obtained in lab. Oral/written presentations. prereq: ChEn 3005; upper div ChEn major

CHEN 3701. Introduction to Biomolecular Engineering. (3 cr. ; A-F or Audit; Every Fall)
Fundamentals of biological systems, from biomolecules to interplays of biomolecules that give rise to processes of life. Students apply chemical engineering principles to analysis of living systems. prereq: 2001, [[Chem 2302 or concurrent registration is required (or allowed) in Chem 2302] or equiv.], [Math 2373 or equiv.]; high school biology recommended; C- or better in all pre-reqs

CHEN 4041. Industrial Assignment II. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial assignment in engineering co-op program. Application of chemical engineering principles to engineering design problems related to industrial work. Formal written report and presentation. prereq: 3041, GPA of at least 2.80, registration in co-op prog

CHEN 4214. Polymers. (; 3 cr. ; A-F or Audit; Every Spring)
Polymer structure-property relations: structure/morphology of crystalline/amorphous states. Crystallization kinetics. Vitrification and the glass transition. Mechanical properties, failure, permeability, optical/electrical properties, polymer composites, effect of processing on properties. prereq: [[MATS 3011, [3101 or MATS 3001], [upper div MatS or ChEn]]] or instr consent

CHEN 4223W. Polymer Laboratory. (WI; 2 cr. ; Student Option; Every Spring)
Synthesis, characterization, and physical properties of polymers. Free radical, condensation, emulsion, anionic polymerization. Infrared spectroscopy/gel permeation chromatography. Viscoelasticity, rubber elasticity, crystallization.

CHEN 4401W. Senior Chemical Engineering Lab. (WI; 4 cr. ; A-F only; Every Fall)
Principles/techniques of efficient design, structure, measurement, planning, analysis, presentation of experiments. Energy balances, fluid flow, heat transfer, mass transfer. Design of new systems using experimental data obtained in lab. Oral/written presentations. prereq: CHEN 3006, CHEN 3401W

CHEN 4501W. Chemical Engineering Design. (WI; 4 cr. ; A-F only; Every Spring)
Engineering economics of process evaluation, including time/bases for cost estimation. Engineering design through group projects. Case studies. prereq: CHEN 3401W, ChEn 3102, ChEn 3006 (or &3006)

CHEN 4593. Directed study. (; 1-4 cr. [max 6 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Directed study under faculty supervision. prereq: ChEn major upper division, instr consent

CHEN 4594. Directed Research. (; 1-4 cr. [max 6 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Independent lab research under faculty supervision. prereq: Upper div ChEn

CHEN 4594H. Directed Research - Honors. (; 1-4 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Independent lab research under faculty supervision for upper division students wanting honors experience. prereq: instr and DUGS consent, upper div ChEn major

CHEN 4601. Process Control. (3 cr. ; A-F or Audit; Every Fall)
Analysis of dynamic behavior/design of linear control systems for chemical processes. Dynamic response/stability of linear ODE systems, tuning of PID controllers, synthesis of feedback, feedforward/feedback controller. prereq: [3102 or 4102], [upper div ChEn major or dept consent], C- or better in all pre-reqs

CHEN 4701. Applied Math. (; 3 cr. ; A-F only; Every Fall)
Integrated approach to solving linear mathematical problems (linear algebraic equations, linear ordinary/partial differential equations) using theoretical/numerical analysis based on linear operator theory. Undergraduate version of 8201. prereq: [3102 or 4102], ChEn major upper div

CHEN 4702. Advanced Undergraduate Rheology. (; 2 cr. ; A-F only; Every Spring)
Deformation/flow of non-Newtonian/viscoelastic fluids, plastic materials, perfectly elastic solids. Phenomenological/molecular interpretation of rheology of elastomers, polymer melts, polymer solutions. Application of rheology to polymer processing. prereq: [3005 or 4005], instr consent

CHEN 4704. Advanced Undergraduate Physical Rate Processes I: Transport. (; 3 cr. ; A-F only; Every Fall & Spring)
Mass transfer, dilute/concentrated diffusion, Brownian motion. Diffusion coefficients in polymers, of electrolytes, at critical points. Multicomponent diffusion. Correlations/predictions. Mass transfer, chemical reaction. prereq: [3005 or 4005], ChEn major upper div

CHEN 4707. Advanced Undergraduate Statistical Thermodynamics and Kinetics. (; 3 cr. ; A-F only; Every Fall)
Introduction to statistical mechanical description of equilibrium/non-equilibrium properties of matter. Emphasizes fluids, classical statistical mechanics. prereq: ChEn 3005 or 4005, 3101 or 4101, CHEM 3501, CHEM 3502, ChEn major upper div

CHEN 4708. Advanced Undergraduate Chemical Rate Processes: Analysis of Chemical Reactors. (; 3 cr. ; A-F only; Every Spring)
Design of reactors for heat management, with catalytic processes. Analysis of steady state, transient behavior. Polymerization, combustion, solids processing, environmental modeling. Design of multiphase reactors. prereq: [3102 or 4102], ChEn major upper div

CHEN 5531. Electrochemical Engineering and Renewable Energy. (; 3 cr. ; A-F only; Every Fall)
Fundamentals of electrochemical engineering. Electrochemical mass transfer electrokinetics, thermodynamics of electrochemical cells, modern sensors. Formation of thin films and microstructured materials. Computer-based problems. prereq: [MATS 3011 or instr consent], [upper div CSE or grad student]

CHEN 5595. Special Topics. (; 1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
New or experimental special topics. prereq: ChEn major upper div

CHEN 5751. Biochemical Engineering. (; 3 cr. ; A-F or Audit; Every Spring)
Chemical engineering principles applied to analysis/design of complex cellular/enzyme processes. Quantitative framework for design of cells for production of proteins, synthesis of antibodies with mammalian cells, or degradation of toxic compounds in contaminated soil. prereq: [3005 or 4005], [concurrent registration is required (or allowed) in 3006 or concurrent registration is required (or allowed) in 4006], [concurrent registration is required (or allowed) in 3102 or concurrent registration is required (or allowed) in 4102]

CHEN 5753. Advanced Biomedical Transport Processes. (; 3 cr. ; A-F or Audit; Every Spring)
Fluid, mass, heat transport in biological systems. Mass transfer across membranes, fluid flow in capillaries, interstitium, veins, and arteries Heat transfer in single cells/tissues. Whole organ, body heat transfer issues. Blood flow, oxygenation. Heat/mass transfer in respiratory systems. Biotransport issues in artificial organs, membrane oxygenators, drug delivery applications. prereq: 3005 or 4005 or equiv

CHEN 5771. Colloids and Dispersions. (; 3 cr. ; A-F or Audit; Every Fall)
Preparation, stability, coagulation kinetics or colloidal solutions. DLVO theory, electrokinetic phenomena. Properties of micelles, other microstructures. prereq: Physical chemistry

Chemistry (CHEM)

CHEM 1015. Introductory Chemistry: Lecture. (PHYS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Matter/energy, atoms, compounds, solutions, chemical reactions, mole/chemical calculations, gases, liquids, solids, chemical bonding, atomic/molecular structure, acids, bases, equilibria. Physical/chemical properties of hydrocarbons and organic compounds. Problem solving. prereq: [High school chemistry or equiv], two yrs high school math, not passed chem placement exam, high school physics recommended; Students who will go on to take CHEM 1061/1065 should take CHEM 1015 only. Students who will NOT be continuing on to CHEM 1061/1065 and need to fulfill the Physical Science/Lab core requirement need take the 1-credit lab course CHEM 1017 either concurrently or consecutively. This course will NOT fulfill the Physical Science/Lab core requirement unless the CHEM 1017 lab course is completed either concurrently or consecutively.

CHEM 1016. Exploring Chemical Thinking. (1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
This course is designed to help students develop and implement algebraic and chemical thinking, the ability to use symbols to represent atoms and molecules, and how these symbolic representations of microscopic particles match our macroscopic experimental observations/ data. While these unique skills will be explicitly developed in this course, they will help students gain a deeper understanding of any chemical concepts to which they are applied.

CHEM 1017. Introductory Chemistry: Laboratory. (PHYS; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Organic chemistry. Matter/energy, atoms, compounds, solutions, chemical reactions, mole/chemical calculations, gases, liquids, solids, chemical bonding, atomic/molecular structure, acids, bases, equilibria. Physical/ chemical properties of hydrocarbons and organic compounds containing halogens, nitrogen, or oxygen. Problem solving. prereq: [1015 or concurrent registration is required (or allowed) in 1015], dept consent; credit will not be granted if credit received for: 1011; CHEM 1017 is a 1-credit lab-only course. This course is not intended for students who are planning to take CHEM 1061/1065. Intended only for students who need the course to fulfill the Physical Science/Lab requirement, and are taking CHEM 1015 either concurrently or consecutively. This course will NOT fulfill the Physical Science/Lab core requirement, unless CHEM 1015 is completed either concurrently or consecutively.; meets Lib Ed req of Physical Sciences)

CHEM 1061. Chemical Principles I. (PHYS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Atomic theory, periodic properties of elements. Thermochemistry, reaction stoichiometry. Behavior of gases, liquids, and solids. Molecular/ionic structure/bonding. Organic chemistry and polymers. energy sources, environmental issues related to energy use. Prereq-Grade of at least C- in [1011 or 1015] or [passing placement exam, concurrent registration is required (or allowed) in 1065]; intended for science or engineering majors; concurrent registration is required (or allowed) in 1065; registration for 1065 must precede registration for 1061

CHEM 1062. Chemical Principles II. (PHYS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Chemical kinetics. Radioactive decay. Chemical equilibrium. Solutions. Acids/bases. Solubility. Second law of thermodynamics. Electrochemistry/corrosion. Descriptive chemistry of elements. Coordination chemistry. Biochemistry. prereq: Grade of at least C- in 1061 or equiv, concurrent registration is required (or allowed) in 1066; registration for 1066 must precede registration for 1062

CHEM 1065. Chemical Principles I Laboratory. (PHYS; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Basic laboratory skills while investigating physical and chemical phenomena closely linked to lecture material. Experimental design, data collection and treatment, discussion of errors, and proper treatment of hazardous wastes. prereq: concurrent registration is required (or allowed) in 1061

CHEM 1066. Chemical Principles II Laboratory. (PHYS; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Basic laboratory skills while investigating physical and chemical phenomena closely linked to lecture material. Experimental design, data collection and treatment, discussion of errors, and proper treatment of hazardous wastes. prereq: concurrent registration is required (or allowed) in 1062

CHEM 1071H. Honors Chemistry I. (PHYS; 3 cr. ; A-F only; Every Fall)
Advanced introduction to atomic theory. Periodic properties of elements. Behavior of gases, liquids, and solids. Molecular/ ionic structure, bonding. Aspects of organic chemistry, spectroscopy, and polymers. Mathematically demanding quantitative problems. Writing for scientific journals. prereq: Honors student, permission of University Honors Program, concurrent registration is required (or allowed) in 1075H; registration for 1075H must precede registration for 1071H

CHEM 1072H. Honors Chemistry II. (PHYS; 3 cr. ; A-F only; Every Spring)
Advanced introduction. Chemical kinetics/ reaction mechanisms, chemical/physical equilibria, acids/bases, entropy/second law of thermodynamics, electrochemistry/corrosion; descriptive chemistry of elements; coordination chemistry; biochemistry. prereq: 1071H, concurrent registration is required (or allowed) in 1076H, honors student, registration for 1076H must precede registration for 1072H

CHEM 1075H. Honors Chemistry I Laboratory. (PHYS; 1 cr. ; A-F only; Every Fall)
Develop laboratory skills while investigating physical and chemical phenomena closely linked to lecture material. Experimental design, data collection and treatment, discussion of errors, and the proper treatment of hazardous wastes. Prereq-&1071H, honors student, permission of University Honors Program.

CHEM 1076H. Honors Chemistry II Laboratory. (PHYS; 1 cr. ; A-F only; Every Spring)
Develop laboratory skills as experiments become increasingly complex. Data collection/ treatment, discussion of errors, proper treatment of hazardous wastes, experiment design. prereq: concurrent registration is required (or allowed) in 1072H

CHEM 1081. Chemistry for the Life Sciences I. (PHYS; 3 cr. ; Student Option; Every Fall)
The topics of atomic theory, molecular structure, bonding and shape, energy and enthalpy, gases, properties of solutions, and equilibrium will be presented along with their application to biological systems. Intended to provide a strong chemistry background for students pursuing life science related majors or careers in life science related fields. prereq: grade of a C- or better in CHEM 1015 or passing chemistry placement exam. This course is recommended for CBS majors.

CHEM 1082. Chemistry for the Life Sciences II. (3 cr. ; Student Option; Every Spring)
The topics of acids, bases and equilibrium, kinetics, nucleophilic substitution and elimination reactions, free radicals, electrochemistry, and alkene addition reactions will be presented along with their application to biological systems. Intended to provide a strong chemistry background for students pursuing life science related majors or careers in life science related fields. prereq: grade of a C- or better in CHEM 1081 (lecture) and CHEM 1065 (lab); concurrent registration is required (or allowed) in 1086; registration for 1086 must precede registration for 1082. This course is recommended for CBS majors.

CHEM 1086. Chemistry for the Life Sciences II Laboratory. (1 cr. ; Student Option; Every Spring)
Experimental techniques and instrumentation applied to the study of chemical reactions.

Techniques include computational chemistry, isolation of natural products, chromatography, acid-base titrations, preparation of buffers, study of reaction kinetics, and examination of polymer degration. Prereq: grade of a C- or better in CHEM 1081 (lecture) and CHEM 1065 (lab). Concurrent registration in CHEM 1082 is required. This course is recommended for CBS majors.

CHEM 1901. Ideas Worth Spreading: Digging into TED Talks. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
TED talks are among the most widely available forms of intellectual discourse. In these short oral presentations, speakers share thoughtful and thought-provoking insights on a range of topics. In this course, we will focus both on discovering our own passions and how to communicate these passions effectively to a broad audience.

CHEM 1907. Chemistry in the Kitchen. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Cooking is a widely-known (and widely-appreciated) application of chemistry. In this course, we will discuss the chemical principles behind topics such as nutritional value of food, the role of gluten in baking, caramelization/roasting, and molecular gastronomy. Relevant concepts from biochemistry, neuroscience, and materials science will also addressed.

CHEM 1911W. Quantum Mechanics and Popular Philosophy. (WI; 2 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
One may argue about its causal role in these matters, but there is no doubt that the language of quantum mechanics has provided a powerful new set of metaphors with which to express our understanding of ourselves and our place in the overall scheme of things. We will begin with an introduction to some of the basic ideas of quantum mechanics, including the uncertainty principle and wave/particle duality, and discuss some of the quantum paradoxes that highlight the counter-intuitive nature of these concepts. We will then go on to discuss the reflection of these ideas in popular books, articles, and web sites concerning religion, mythology, and philosophy.

CHEM 1913. The Art in Science. (; 2 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
Science is an art. But there is also much art in science. From beautiful and inspiring photographs, posters, videos, and sculptures, science can be a source of inspiration for art. Conversely, art of many media are powerful tools to understand and explain science. In this seminar class we will discuss our vision of science and how it can be portrayed in art. Students will discover research ongoing at UMN and create an art project such as a journal cover or a photography portfolio to illustrate their vision of it.

CHEM 2081. Chemistry for the Life Sciences III. (3 cr. ; Student Option; Every Fall)
The topics of spectroscopy, conjugation and aromaticity, carbonyl and their reactivity, carboxylic acid derivatives, and electrophilic aromatic substitution reactions will be presented along with their application to biological systems. Intended to provide a strong chemistry background for students pursuing life science related majors or careers in life science related fields. prereq: grade of a C- or better in CHEM 1082 (lecture) and CHEM 1086 (lab). This course is recommended for CBS majors.

CHEM 2085. Chemistry for the Life Sciences III Laboratory. (2 cr. ; Student Option; Every Fall)
Experimental techniques and instrumentation applied to the study of chemical reactions and related biological systems. Techniques include spectroscopy, isolation, kinetics and thermodynamics, green chemistry, oxidations, enzymatic reductions, drug discovery. prereq: grade of a C- or better in CHEM 1082 (lecture) and CHEM 1086 (lab). Concurrent registration in CHEM 2081 is required. This course is recommended for CBS majors.

CHEM 2094. Directed Research. (; 1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Learning experience in areas not covered by regular courses. Individually arranged with faculty member. prereq: instr consent

CHEM 2101. Introductory Analytical Chemistry Lecture. (; 3 cr. ; Student Option; Every Fall & Summer)
Primarily for chemistry majors. Methods/concepts of measurement by chemical/instrumental analysis, including titrimetry, quantitative spectrophotometric analysis, chromatographic separations, equilibrium/rate methods. prereq: 1062/1066 or equiv

CHEM 2111. Introductory Analytical Chemistry Lab. (; 2 cr. ; Student Option; Every Fall & Summer)
Lab for 2101. High precision methods, acidimetry and complexometry, single and multicomponent analysis by spectrophotometry, analysis of mixtures by ion exchange and gas chromatography, enzymatic and rate methods. prereq: 2101 or concurrent registration is required (or allowed) in 2101

CHEM 2121. Process Analytical Chemistry. (; 3 cr. ; A-F or Audit; Every Spring)
Strategies/techniques for analysis.
Use of modern instruments, including spectrophotometry, chromatography, and electrochemistry. prereq: [2302 or concurrent registration is required (or allowed) in 2302], [4501 or concurrent registration is required (or allowed) in 4501], CSE student

CHEM 2301. Organic Chemistry I. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Organic compounds, constitutions, configurations, conformations, reactions. Molecular structure. Chemical reactivity/properties. Spectroscopic characterization of organic molecules. prereq: C- or better in 1062/1066 or 1072H/1076H

CHEM 2302. Organic Chemistry II. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Reactions, synthesis, and spectroscopic characterization of organic compounds, organic polymers, and biologically important classes of organic compounds such as lipids, carbohydrates, amino acids, peptides, proteins, and nucleic acids. prereq: Grade of at least C- in 2301

CHEM 2311. Organic Lab. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Laboratory techniques in synthesis, purification and characterization of organic compounds with an emphasis on green chemistry methodologies. prereq: Grade of at least C- in [2302] or [concurrent registration is required (or allowed) in 2302

CHEM 2312H. Honors Organic Lab. (; 5 cr. ; A-F only; Every Fall)
Honors organic chemistry lab. prereq: [2301 or concurrent registration is required (or allowed) in 2301], [Chem or ChemE or BioC] major, instr consent

CHEM 2331H. Honors Elementary Organic Chemistry I. (; 3 cr. ; A-F only; Every Fall)
Important classes of organic compounds, their constitutions, configurations, conformations, reactions. Relationships between molecular structure/chemical properties/reactivities. Spectroscopic methods/characterization of organic molecules. prereq: At least B+ in 1072H, UHP student

CHEM 2332H. Honors Elementary Organic Chemistry II. (; 3 cr. ; A-F only; Every Spring)
Continuation of 2331H. Reactions, synthesis, and spectroscopic characterization of organic compounds, organic polymers, and their role in biologically important classes of organic molecules such as lipids, carbohydrates, amino acids, peptides, proteins, and nucleic acids. prereq: At least C- in 2331H, UHP student

CHEM 2910. Special Topics in Chemistry. (; 1 cr. [max 6 cr.] ; S-N or Audit; Every Fall)
Topics in chemistry. Opportunities and current research. prereq: 1 sem 1xxx chemistry or instr consent

CHEM 2920. Special Topics in Chemistry. (; 1 cr. [max 6 cr.] ; S-N or Audit; Every Spring)
Topics in chemistry. Opportunities and current research. prereq: 1 sem 1xxx chemistry or instr consent

CHEM 4001. Chemistry of Biomass and Biomass Conversion to Fuels and Products. (ENV; 4 cr. ; A-F or Audit; Every Fall)
Chemical principles underlying structure, properties, processing, performance of plant materials. prereq: 2301, [jr or sr or instr consent]

CHEM 4011. Mechanisms of Chemical Reactions. (; 3 cr. ; Student Option; Every Fall)
Reaction mechanisms, methods of study. Mechanistic concepts. Gas phase reactions. "Electron pushing" mechanisms in organic/enzymatic reactions. Kinetic schemes, other strategies. prereq: [2302, 4501] or equiv

CHEM 4021. Computational Chemistry. (; 3 cr. ; Student Option; Every Spring)
Theoretical methods for study of molecular structure, bonding, and reactivity. Ab initio/semi-empirical calculations. Theoretical determination of molecular electronic structure/spectra, relation to experimental techniques. Molecular mechanics. Structure determination for large systems. Molecular properties/reactivity. Computational tools. Critical assessment of methods/theoretical work in the

literature. Lab. prereq: [4502 or equiv], instr consent

CHEM 4066. Chemistry of Industry. (; 3 cr. ; Student Option; Every Spring)
Industrial and polymer chemistry technology. Relation of basic properties to industrial utility. Economics, social problems, industrial environment. prereq: Chem sr or grad student or instr consent

CHEM 4094W. Directed Research. (WI; 1-5 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Learning experience in areas not covered by regular courses. Individually arranged with faculty member. prereq: Any 3xxx or 4xxx chem course, instr consent

CHEM 4101. Modern Instrumental Methods of Chemical Analysis. (; 3 cr. ; A-F or Audit; Every Spring)
Basic electronic, optical, computer technologies in design of chemical instrumentation. Advanced topics in spectroscopy (e.g., FT-NMR, FT-IR, atomic absorption/emission). Electrochemistry. Mass spectrometry. prereq: 2101, 2111

CHEM 4111W. Modern Instrumental Methods of Chemical Analysis Lab. (WI; 2 cr. ; A-F or Audit; Every Spring)
Instrumental techniques, including spectroscopic methods, electrochemical methods, and analysis based on separation. Use of computers in data collection and reduction. prereq: 4101 or concurrent registration is required (or allowed)

CHEM 4201. Materials Chemistry. (; 3 cr. ; Student Option; Every Fall)
Crystal systems/unit cells, phase diagrams, defects/interfaces, optical/dielectric properties, electrical/thermal conductivity, X-ray diffraction, thin film analysis, electronic structure, polarons/phonons, solid state chemistry, liquid/molecular crystals, polymers, magnetic/optical materials, porous materials, ceramics, piezoelectric materials, biomedical materials, catalysts. prereq: [[4502 or equiv], 4701] or instr consent

CHEM 4214. Polymers. (; 3 cr. ; A-F or Audit; Every Spring)
Structure/morphology of crystalline/amorphous states. Crystallization kinetics. Vitrification, glass transition. Mechanical properties, failure, permeability, optical/electrical properties, polymer composites, effect of processing. prereq: [MATS 3011, [CHEN 3101 or CHEN 4101 or MATS 4001], [upper div MatS or ChEn or CHEM]] or instr consent

CHEM 4221. Introduction to Polymer Chemistry. (; 3 cr. ; Student Option; Every Fall)
Condensation, radical, ionic, emulsion, ring-opening, metal-catalyzed polymerizations. Chain conformation, solution thermodynamics, molecular weight characterization, physical properties. prereq: [2302, 4501] or instr consent

CHEM 4223W. Polymer Laboratory. (WI; 2 cr. ; Student Option; Every Spring)
Synthesis, characterization, and physical properties of polymers. Free radical, condensation, emulsion, anionic polymerization. Infrared spectroscopy/gel permeation chromatography. Viscoelasticity, rubber elasticity, crystallization. prereq: 4221 or 4214 or CHEN 4214 or MATS 4214 or instr consent

CHEM 4301. Applied Surface and Colloid Science. (; 3 cr. ; Student Option; Every Fall)
Introduction to surface/colloid science concepts. Surface tension, wetting, adsorption, capillarity. Formation/stability of sols, emulsions, and foams. Water solubility. Partition coefficients of organic species. Properties of both surfactants and water soluble polymers. Focuses on interdisciplinary applications. prereq: 3043 or BMEN 2101 or CHEN 3101 or CHEM 4501 or instr consent

CHEM 4311W. Advanced Organic Chemistry Lab. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Reactions, techniques, and instrumental methods in synthetic organic chemistry. prereq: 2311

CHEM 4321. Organic Synthesis. (; 3 cr. ; Student Option; Every Fall)
Fundamental concepts, reactions, reagents, structural/stereochemical issues, mechanistic skills for organic chemistry. prereq: [2302 or equiv], 4501, instr consent

CHEM 4322. Advanced Organic Chemistry. (; 3 cr. ; Student Option; Every Spring)
Topics vary by instructor. Examples: natural products, heterocycles, asymmetric synthesis, organometallic chemistry, polymer chemistry. prereq: [2302 or equiv], 4501, instr consent

CHEM 4352. Physical Organic Chemistry. (; 3 cr. ; Student Option; Every Spring)
Fundamental concepts and mechanistic tools for analysis of organic reaction mechanisms. Solvation, reactive intermediates, gas phase chemistry. Photochemistry/strained-ring chemistry. prereq: 4501, [4011 or 8011]

CHEM 4361. Interpretation of Organic Spectra. (; 3 cr. ; Student Option; Every Fall)
Application of nuclear magnetic resonance, mass, ultraviolet, and infrared spectral analyses to organic structural problems. prereq: [2302 or equiv], 4501, instr consent

CHEM 4411. Introduction to Chemical Biology. (; 3 cr. ; Student Option; Every Fall)
Chemistry of amino acids, peptides, proteins, lipids, carbohydrates, and nucleic acids. Structure, nomenclature, synthesis, reactivity. Techniques to characterize biomolecules. prereq: [2302 or 2081 equiv]

CHEM 4412. Chemical Biology of Enzymes. (; 3 cr. ; Student Option; Periodic Spring)
Enzyme classification with examples from current literature. Strategies to decipher enzyme mechanisms. Chemical approaches to control enzyme catalysis. prereq: [2302 or equiv], 4501

CHEM 4423W. Foundations of Chemical Biology Laboratory. (WI; 2 cr. ; Student Option; Every Fall & Spring)
Experimental techniques from all areas of chemistry applied to biological problems. Experiments to highlight techniques and concepts used in modern Chemical Biology research. Emphasis on connections between classroom/laboratory learning and experimental science, health, disease and medical research. prereq: [2302 or 2304], 2311, 2111

CHEM 4501. Introduction to Thermodynamics, Kinetics, and Statistical Mechanics. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Physical chemistry as it relates to macroscopic descriptions of chemical systems. Chemical thermodynamics, phase equilibria, chemical equilibria. Statistical mechanics. Phenomenological reaction kinetics. Kinetic theory of gases. Collision, statistical theories of reaction rates. prereq: [1062/1066 or 1071H/1075H], [MATH 2263 or concurrent registration is required (or allowed) in MATH 2263 or MATH 2374 or concurrent registration is required (or allowed) in MATH 2374], [PHYS 1302 or PHYS 1402V or PHYS 1502V]

CHEM 4502. Introduction to Quantum Mechanics and Spectroscopy. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Microscopic descriptions of chemical systems. Quantum theory. Applications to atomic/molecular structure. Molecular spectroscopy. Quantum statistical mechanics. Discussion of solutions to several differential equations. prereq: [1062/1066 or 1072H/1076H of 1082/1086], [MATH 2263 or concurrent registration is required (or allowed) in MATH 2263 or MATH 2374 or concurrent registration is required (or allowed) in MATH 2374 or MATH 2243 or concurrent registration is required (or allowed) in MATH 2243 or MATH 2373 or concurrent registration is required (or allowed) in MATH 2373], [PHYS 1302 or PHYS 1402V or PHYS 1502V]

CHEM 4511W. Advanced Physical Chemistry Lab. (WI; 3 cr. ; Student Option; Every Fall)
Experiments illustrating principles and methods of thermodynamics, reaction kinetics, and quantum mechanics. prereq: 4501, 4502, chemistry major

CHEM 4601. Green Chemistry. (ENV; 3 cr. ; Student Option; Every Spring)
Survey key aspects of green chemistry in modern research and development both in academia and industry, as well as relevant implications for the environment, technology, and public policy. prereq: [2302 or 2081 or equiv]

CHEM 4701. Inorganic Chemistry. (; 3 cr. ; Student Option; Every Fall & Spring)
Periodic trends. Structure/bonding in compounds where s and p electrons are important. Descriptive chemistry of solids and transition metal compounds. Transition metal chemistry. Topics in main group and materials chemistry. prereq: [2311 or concurrent registration is required (or allowed) in 2311], [4501 or concurrent registration is required (or allowed) in 4501 or 4502 or concurrent registration is required (or allowed) in 4502]

CHEM 4711W. Advanced Inorganic Chemistry Lab. (WI; 3 cr. ; A-F or Audit; Every Spring)

Lab experiments in inorganic/organometallic chemistry illustrating synthetic/spectroscopic techniques. prereq: 4701, chem major

CHEM 4715. Physical Inorganic Chemistry. (; 3 cr. ; Student Option; Every Fall)
Physical methods (e.g., IR, UV-VIS, ESR, Mossbauer and mass spectroscopy, magnetic measurements, X-ray diffraction) and concepts applied to inorganic and organometallic systems. prereq: 4701 or equiv, chem major or instr consent

CHEM 4725. Organometallic Chemistry. (; 3 cr. ; Student Option; Periodic Fall)
Synthesis, reactions, structures, and other properties of main group and transition metal organometallic compounds; electronic and structural theory, emphasizing their use as stoichiometric and homogeneous catalytic reagents in organic and inorganic systems. prereq: 4701 or equiv, chem major or instr consent

CHEM 4735. Bioinorganic Chemistry. (; 3 cr. ; Student Option; Periodic Fall)
Role of metal ions in biology. Emphasizes structure, function, and spectroscopy of metalloproteins and their synthetic analogs. prereq: 4701 or equiv, chem grad or instr consent

CHEM 4745. Advanced Inorganic Chemistry. (; 3 cr. ; Student Option; Periodic Spring)
Topics in main group and transition metal chemistry. Emphasizes synthesis, structure, physical properties, and chemical reactivity. prereq: 4701, chem major, instr consent

CHEM 4894. Directed Thesis. (; 1-3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Written thesis under direction of chemistry project advisor. prereq: instr consent

CHEM 5210. Materials Characterization. (; 4 cr. ; Student Option; Every Spring)
Modern tools/techniques for both bulk- and thin-film characterization. Topics may include ion-solid interactions, Rutherford back scattering, secondary ion mass spectrometry, solid-state NMR, x-ray photoelectron spectroscopy, small-angle x-ray/neutron scattering, transmission/scanning electron/ probe microscopy, near-field scanning optical microscopy, porosimetry, adsorption techniques, and ellipsometry. prereq: grad student or instr consent

CHEM 5245. Introduction to Drug Design. (; 3 cr. ; A-F or Audit; Periodic Fall)
Concepts that govern design/discovery of drugs. Physical, bioorganic, medicinal chemical principles applied to explain rational design and mechanism of action drugs. prereq: 2302 or equiv

CHEM 5755. X-Ray Crystallography. (; 4 cr. ; A-F or Audit; Every Spring)
Essentials of crystallography as applied to modern, single crystal X-ray diffraction methods. Practical training in use of instrumentation in X-ray crystallography facility in Department of Chemistry. Date collection, correction/refinement, structure solutions, generation of publication materials, use of Cambridge Crystallographic Structure Database. prereq: Chem grad student or instr consent

Chicano Studies (CHIC)

CHIC 1102. Latinos in the United States: Culture and Citizenship. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Historical/cultural knowledge on the complex/ multi-layered relationship that Latinos have to the U.S., their country of origin. Influence of social, cultural, and political dynamics on Latino identity, politics, and sense of belonging in the U.S. Cultural citizenship.

CHIC 1102H. Honors: Latinos in the United States: Culture and Citizenship. (DSJ,HIS; 3 cr. ; A-F only; Every Fall)
Historical/cultural knowledge on the complex/ multi-layered relationship that Latinos have to the U.S., their country of origin. Influence of social, cultural, and political dynamics on Latino identity, politics, and sense of belonging in the U.S. Cultural citizenship.

CHIC 1112. Paradigms in Chicana/o Studies. (DSJ; 3 cr. ; Student Option; Every Spring)
Prevailing paradigms of analysis, methodologies of research, and guiding theoretical concepts that have shaped Chicana/ o studies. The paradigms introduced in this course are foundational to the study of Chicanas, Chicanos, and Chicanx, and it provides the necessary tools for success in upper division courses in the department. Topics include decolonial imaginaries, indigeneity, intersectionality, experiential knowledge, hegemony and counter-hegemony, oppositional consciousness, queer theory, racialization, transnationalism, and globalization.

CHIC 1201. Racial Formation and Transformation in the United States. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall)
How aggrieved racialized groups struggle over identity, culture, place, and meaning. Histories of racialization. Strategies toward rectification of historical injustices from dispossession, slavery, exploitation, and exclusion.

CHIC 1275. Engaged Learning in the Chicano/Latino Community. (CIV; 3 cr. ; A-F only; Every Fall & Spring)
Normative/applied ethics used to reflect on personal/societal responsibilities and to analyze U.S. educational systems. Institutional/ social constraints on equitable educational opportunities for Chicano/Latino students. Models of inclusive/just education. Students tutor/mentor Chicanos/Latinos, dialogue with Chicano/Latino educators. This course covers race, ethnicity, gender, sexuality, immigration, migration.

CHIC 1912. Performing Latina/o/x Identities: Media, Art, and Popular Culture. (DSJ; 3 cr. ; A-F only; Every Fall)
What are the most popular representations of Latinos in mainstream media? How are stereotypes about Latinos perpetuated by the media? How do scholars in various fields, such as Communications and Latina/o Studies, critique one-dimensional images of Latinos in the media and in popular culture? How do Latinos challenge stereotypical portrayals and represent themselves when they create their own art or media? How does the intersection of ethnicity, gender, sexuality and class inform media representations and Latina/o/x-created art-forms? With these questions in mind, this course explores the representation of Latinos and Latinas in the media and how Latinas and Latinos represent themselves in mainstream, independent, and social media when they have creative control. Students learn how Latina/o identity has been portrayed in popular and in independent media, in politics, in activism and social movements. By engaging with scholarship on media representation, students learn to identify the major stereotypes of Latinos in television, film, and news media. Students learn to differentiate between stereotypes and efforts towards self-representation produced by Latinos. The course will incorporate performances and workshops led by locally and nationally-renowned Latina/o artists.

CHIC 3212. Chicana Feminism: La Chicana in Contemporary Society. (AH,DSJ; 3 cr. ; Student Option; Every Fall & Spring)
Scholarly/creative work of Chicanas or politically defined women of Mexican American community. Interdisciplinary. Historical context, cultural process, and autoethnography.

CHIC 3216W. Chicana and Chicano Art. (AH,WI,CIV; 3 cr. ; Student Option; Periodic Fall & Spring)
A Chicana/o has been described as a Mexican-American with a political sense of identity that emerges from a desire for social justice. One journalist bluntly stated, "A Chicano is a Mexican-American with a non-Anglo image of himself" (Ruben Salazar, Los Angeles Times, 1970). This identity emerged through the Chicano Movement, a social and political mobilization that began in the 1960s and 1970s. The Chicano Movement witnessed the rise of community-based political organizing to improve the working conditions, education, housing opportunities, health, and civil rights for Mexican-Americans. For its inception, the Chicano Movement attracted artists who created a new aesthetic and framework for producing art. A major focus of Chicana/o artists of the 1960s and 1970s was representation, the right to self-determination, and the role of art in fostering civic and public engagement. This focus continues to inform Chicana/o cultural production. Social intervention, empowerment, and institutional critique remain some of the most important innovations of American art of the last several decades, and Chicana/o artists played a significant role in this trend.

CHIC 3221. Chicana/o Cultural Studies: Barrio Culture and the Aesthetics of Everyday Life. (AH,DSJ; 3 cr. ; Student Option; Every Spring)
Cultural studies approach to investigating aesthetic dimensions of experience that inform and are informed by dynamic relationship between culture, class, ethnicity, and power.

CHIC 3223. Chicana/o and Latina/o Representation in Film. (AH,DSJ; 3 cr. ; Student Option; Every Spring)
Introduction to Chicana/o and Latina/o visual representation. Depiction of Latina/o experience, history, and culture in film. Analyzing independent/commercial films as texts that illuminate deeply held beliefs around race, class, ethnicity, gender, and national origin.

CHIC 3275. Engaged Learning in the Chicano/Latino Community. (CIV; 3 cr. ; A-F only; Every Fall & Spring)
Normative/applied ethics used to reflect on personal/societal responsibilities and to analyze U.S. educational systems. Institutional/social constraints on equitable educational opportunities for Chicano/Latino students. Models of inclusive/just education. Students tutor/mentor Chicanos/Latinos, dialogue with Chicano/Latino educators. This course covers race, ethnicity, gender, sexuality, immigration, migration.

CHIC 3352. Transborder Theory: Global Views/Borderland Spaces. (; 3 cr. ; Student Option; Fall Even Year)
Demographic realities, political/economic shifts, cultural exchanges that characterize U.S.-Mexico borderland spaces in global economy. Historically contextualized, transnational approach to cultures, politics, and economics of U.S.-Mexico Borderlands. Dynamics of borderland spaces.

CHIC 3374. Migrant Farmworkers in the United States: Families, Work, and Advocacy. (CIV; 4 cr. ; Student Option; Every Spring)
Socioeconomic/political forces that impact migrant farmworkers. Effects of the laws and policies on everyday life. Theoretical assumptions/strategies of unions and advocacy groups. Role/power of consumer. How consuming cheap food occurs at expense of farmworkers.

CHIC 3375. Folklore of Greater Mexico. (DSJ; 3 cr. ; Student Option; Every Fall & Spring)
Scholarly survey and exploration of the sociocultural function of various types of folklore in Greater Mexico. Ways in which folklore constructs and maintains community, as well as resists and engenders cultural shifts.

CHIC 3412. Comparative Indigenous Feminisms. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
The course will examine the relationship between Western feminism and indigenous feminism as well as the interconnections between women of color feminism and indigenous feminism. In addition to exploring how indigenous feminists have theorized from 'the flesh' of their embodied experience of colonialism, the course will also consider how indigenous women are articulating decolonization and the embodiment of autonomy through scholarship, cultural revitalization, and activism.

CHIC 3423. Central American Revolutions. (; 3 cr. ; Student Option; Periodic Fall)
Social, political, and economic issues that have shaped Central American history for nearly two centuries. Colonial histories, capitalist development, ethnic/racial conflict, foreign intervention, Catholic Church, civil war throughout region. Readings/discussions cover events in Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama.

CHIC 3425. History of Modern Mexico. (3 cr. ; A-F or Audit; Every Fall)
Mexico, from independence to present. Struggles for land, liberty, and equality. Ethnicity, gender and class. Economic growth, nationalism, and globalization. Urbanization, immigration, demographic transition.

CHIC 3444. Chicana and Chicano History I. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Experiences of people of Mexican descent in the United States. Important eras in histories of Mexico, the United States, and Mexican Americans. Central role of Chicana/os in U.S. history, culture, and politics. Topics include race, ethnicity, gender, sexuality, immigration, migration.

CHIC 3446. Chicana and Chicano History II: WWII, El Movimiento, and the New Millennium. (DSJ,HIS; 3 cr. ; Student Option; Every Spring)
Experiences of people of Mexican descent in the U.S. Notions of citizenship from WWII. Chicano civil rights movement. Impact of immigration patterns/legislation. Cultural wars, changing demographics. Social, economic, and political changes that influenced day-to-day life of Mexican Americans. Meaning of racialized "Mexican" identity. How different groups of Mexicans have understood their relationships to other Americans and other Latino groups.

CHIC 3452. Chicanx/LatinX Indigeneity. (DSJ; 3 cr. ; Student Option; Every Spring)
Historical, cultural, and political processes impacting Chicanas/os and their understanding of being indigenous to the North American continent. History, culture, and identity formation as dynamic processes intimately related to present and future constructions of Mexican American identities and sociopolitical perspectives.

CHIC 3507W. Introduction to Chicana/o Literature. (DSJ,WI,LITR; 3 cr. ; Student Option; Every Fall & Spring)
Cultural, intellectual, and sociopolitical traditions of Mexican Americans as they are represented in creative literature. Genres/forms of creative cultural expression and their significance as representations of social, cultural, and political life in the United States. Novels, short stories, creative non-fiction, drama, essay, poetry, and hybrid forms of literature.

CHIC 3672. Chicana/o Experience in the Midwest. (DSJ; 3 cr. ; Student Option; Every Spring)
Experiences of people generally defined as Chicano or Latino, living in the Midwest. Individual/group identity. Focuses on construction of Chicano-Latino experience. How identity affirmation, migration stories, immigration status, historical memory, and cultural traditions are impacted by being in the Midwest.

CHIC 3771. Latino Social Power and Social Movements in the U.S.. (; 3 cr. ; Student Option; Periodic Fall)
How Latinos have collectively resisted social domination. Theories of social power/movements. Resistance by Latinos during 60s/70s. Current organized efforts to curb immigration, establish English as official language, and limit immigrant rights.

CHIC 3852. Chicana/o Politics. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Theory/practice of Chicana/o politics through an analysis of Mexican American experience, social agency, and response to larger political systems and behaviors using social science methods of inquiry. Unequal power relations, social justice, and the political economy.

CHIC 3862. American Immigration History. (DSJ,HIS; 3 cr. ; A-F or Audit; Periodic Fall)
Global migrations to U.S. from Europe, Asia, Latin American, and Africa, from early 19th century to present. Causes/cultures of migration. Migrant communities, work, and families. Xenophobia, assimilation/integration, citizenship, ethnicity, race relations. Debates over immigration. Place of immigration in America's national identity.

CHIC 3888. Immigration and the U.S. Latina/o Experience: Diaspora, Identity, and Community. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Experiences of migrants from Latin America to the United States in 20th/21st century. Migrant engagements with US society. Pre-existing Latina/o and other ethnic communities. experiences within political, economic, and social aspects of life at local/global level.

CHIC 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

CHIC 3900. Topics in Chicano Studies. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Topics vary by section of course.

CHIC 3993. Directed Studies. (; 1-9 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading, research, and study. Students often do preliminary readings and research in conjunction with plans for education abroad programs. prereq: instr consent

CHIC 4231. Color of Public Policy: African Americans, American Indians, Asian

Americans & Chicanos in the U.S.. (3 cr. ; Student Option; Periodic Fall)
Examination of the structural or institutional conditions through which people of color have been marginalized in public policy. Critical evaluation of social theory in addressing the problem of contemporary communities of color in the United States.

CHIC 4232. Chicana/o - Latina/o Gender and Sexuality Studies. (AH,DSJ; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Critical thinking of Chicanas/os and Latinas/os around construction of gender. Politics of sexual identity. How the self is gendered in relationship to sexual, racial, class, and national identities under different social structural conditions. Way in which the "borders" that define/confine sexual norms shift over time.

CHIC 4275. Theory in Action: Community Engagement in a Social Justice Framework. (CIV; 3 cr. ; Student Option; Every Fall)
Theoretical frameworks of social justice and community engagement for work outside classroom with/in Latina/o community. Worker issues/organizing. Placements in unions, worker organizations. Policy initiatives on labor issues. Students reflect on their own identity development, social location, and position of power/privilege.

CHIC 4401. Chicana/Latina Cultural Studies. (AH,DSJ; 3 cr. ; Student Option; Fall Even Year)
Readings in Chicana/Latina cultural studies. TV, film, art, music, dance, theatre, literature. Identity/sexuality. Production of culture/theory.

CHIC 4901W. Senior Paper. (WI; 3 cr. ; A-F only; Every Spring)
Capstone experience. Students produce original research paper or creative project on a topic determined in consultation with a faculty adviser.

CHIC 5216W. Chicana and Chicano Art. (AH,WI,CIV; 3 cr. ; Student Option; Periodic Fall & Spring)
A Chicana/o has been described as a Mexican-American with a political sense of identity that emerges from a desire for social justice. One journalist bluntly stated, "A Chicano is a Mexican-American with a non-Anglo image of himself" (Ruben Salazar, Los Angeles Times, 1970). This identity emerged through the Chicano Movement, a social and political mobilization that began in the 1960s and 1970s. The Chicano Movement witnessed the rise of community-based political organizing to improve the working conditions, education, housing opportunities, health, and civil rights for Mexican-Americans. For its inception, the Chicano Movement attracted artists who created a new aesthetic and framework for producing art. A major focus of Chicana/o artists of the 1960s and 1970s was representation, the right to self-determination, and the role of art in fostering civic and public engagement. This focus continues to inform Chicana/o cultural production. Social intervention, empowerment, and institutional critique remain some of the most important innovations of American art of the last several decades, and Chicana/o artists played a significant role in this trend.

CHIC 5374. Migrant Farmworkers in the United States: Families, Work, and Advocacy. (CIV; 4 cr. ; Student Option; Every Spring)
Socioeconomic/political forces that impact migrant farmworkers. Effects of the laws and policies on everyday life. Theoretical assumptions/strategies of unions and advocacy groups. Role/power of consumer. How consuming cheap food occurs at expense of farmworkers.

CHIC 5412. Comparative Indigenous Feminisms. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
The course will examine the relationship between Western feminism and indigenous feminism as well as the interconnections between women of color feminism and indigenous feminism. In addition to exploring how indigenous feminists have theorized from 'the flesh' of their embodied experience of colonialism, the course will also consider how indigenous women are articulating decolonization and the embodiment of autonomy through scholarship, cultural revitalization, and activism.

CHIC 5920. Topics in Chicana(o) Studies. (; 3 cr. ; Student Option; Every Fall & Spring)
Multidisciplinary themes in Chicana(o) studies. Issues of current interest.

CHIC 5993. Directed Studies. (; 1-3 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading, research, and study for completion of the requirements for a senior paper or honors thesis. prereq: instr consent

Child & Adolescent Psychiatry (CAPY)

CAPY 5672. Children's Exposure to Domestic Violence: Effects on Child Functioning, Treatment Implications. (; 1 cr. ; Student Option; Periodic Spring)
Efects of exposure to domestic violence in context of development, from infancy to late adolescence. Assessment strategies, best practices in intervention/prevention for vulnerable children and adolescents. Multidisciplinary approaches to working with children exposed to violence (e.g., judicial, medical, law enforcement partnerships).

Child Psychology (CPSY)

CPSY 1301. Nature-Based Learning in Early Childhood. (3 cr. ; A-F or Audit; Every Fall)
This course is intended for undergraduate students throughout the University of Minnesota to develop an understanding of the connection between early childhood, development, and nature-based learning and play. Students will learn, through an exploration of national standards and guidelines as well as current research, best practices for connecting children and nature.

CPSY 1334. Global Issues on Children and Youth in Society. (CIV; 3 cr. ; A-F or Audit; Every Spring)
Study of hot topic issues currently faced by children around the world. Provides an introduction to science, ethics, and ramifications in civic life of controversial issues concerning child or youth development in contemporary societies. Examines topics of ethical and civic concern and interest to parents, society, and young people and how developmental science informs these issues and policies as well as the decisions and actions of citizens in society. Students gain a basic understanding of how developmental research and theory inform policy and practices of societies as well as the individual decisions of parents, teachers, community members, and other citizens that influence the lives of children and youth. This course also examines how social issues influence science and its translation to action. Students will be exposed to a wide range of issues about children and youth that currently confront many societies around the world, and the state of the research evidence pertinent to these issues. Students will also learn how research is translated and disseminated so that it can inform policy and practice.

CPSY 2301. Introduction to Child Psychology. (SOCS; 4 cr. ; Student Option; Every Fall & Spring)
This course will examine normative physical, social, and cognitive development from the prenatal period through adolescence. The major goals include fostering an understanding of the usefulness of a developmental approach to psychological issues, familiarizing students with current research and methodology in child psychology, and engaging students in the experiences of developmental psychology through observation and analysis of child behavior. PSY majors should take the cross-listed course CPSY 3301.

CPSY 2310. Special Topics in Child Development. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Periodic Fall & Spring)
Topics vary by semester.

CPSY 3301. Introduction to Child Psychology. (SOCS; 4 cr. ; Student Option; Every Fall & Spring)
This course will examine normative physical, social, and cognitive development from the prenatal period through adolescence. The major goals include fostering an understanding of the usefulness of a developmental approach to psychological issues, familiarizing students with current research and methodology in child psychology, and engaging students in the experiences of developmental psychology through observation and analysis of child behavior. This course is intended for non-Child Psychology/Early Childhood majors. Those majors should take the cross-listed course CPSY 2301.

CPSY 3308W. Introduction to Research Methods in Child Psychology. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Explore developmental research methodology by learning about observational research

and experimental designs. Critically evaluate research articles, learn to report research, and understand the difference between science and pseudoscience. Gain awareness of the ethical and practical issues that developmental psychologists face when they work with children. prereq: CPSY 2301 / 3301 or equiv

CPSY 3360H. Child Psychology Honors Seminar. (; 2 cr. ; A-F or Audit; Every Fall)
Acquaints students with the various research projects and activities in the Institute for Child Development and in related departments. Faculty are invited to discuss their research projects with seminar participants. prereq: CPsy honors student

CPSY 3401. Children, Youth, and Media. (3 cr. ; Student Option; Spring Odd Year)
This course will examine a variety of questions related to children?s and adolescents? use and understanding of the media, and address the role of the media in cognitive, social, and emotional development. Pre-req: CPSY 2301 OR CPSY 3301 OR PSY 1001

CPSY 3601. Introduction to Child Life Theory and Practice. (; 3 cr. ; A-F or Audit; Every Fall)
This course will provide an introduction to the child life profession with a strong focus on patient and family-centered care. This course will meet the required topics of study as identified by the Child Life Council. The major learning objectives include 1) gaining an understanding of the fundamental theories that support patient and family-centered care and child life practice, 2) identifying how illness, injury and hospitalization impacts a child's development and their family, 3) gaining an understanding of the Official Documents of the Child Life Council, 4) examining the elements of therapeutic play in a clinical setting, and 5) identifying techniques to prepare a child and their family for healthcare encounters. prereq: any introductory course in CPSY, PSY, or FSOS

CPSY 3896. Internship in Child Psychology. (; 1-4 cr. [max 12 cr.] ; S-N only; Every Fall, Spring & Summer)
Students secure an internship in the realm of child psychology/development. A student may only earn credit for a given internship through one course at a time. Corresponding online coursework includes written reflections, journals, and career development activities. Credits are variable based on hours at your site: - 1 credit - 45 hour minimum (average 3-4 hours per week) - 2 credit - 90 hour minimum (average 5-7 hours per week) - 3 credit - 135 hour minimum (average 8-9 hours per week) - 4 credit - 180 hour minimum (average 10-12 hours per week) Students and their supervisors must submit a completed internship contract via Goldpass in order to register. http://goldpass.umn.edu/ Contact the CPSY advisor with any questions.

CPSY 4302. Infant Development. (; 3 cr. ; A-F or Audit; Every Fall)
Perceptual, motor, emotional, social, and cognitive development during the first two years of life; the developing infant in his or her social and physical environment. prereq: CPSY 2301 or equivalent or instructor consent

CPSY 4303. Adolescent Psychology. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Overview of development in the teenage years/second decade of life. Interactions of adolescents with family, school, and society. prereq: PSY 1001 or equivalent

CPSY 4310. Special Topics in Developmental Psychology. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Description is specific to each topics title.

CPSY 4311. Behavioral and Emotional Problems of Children. (; 3 cr. ; A-F or Audit; Every Fall)
Study abnormal psychology and atypical development in children and adolescents. Focus on behavioral and emotional problems, disorders and diagnoses, psychopathology contrasted to normal development. Understand symptoms, causes, course, and prevention of common disorders, excluding physical and sensory handicaps. prereq: CPSY 2301 / 3301 or equiv

CPSY 4313W. Disabilities and Development. (WI; 4 cr. ; Student Option; Every Spring)
Surveys all areas of exceptionality. Mental, hearing, vision, physical, speech, language handicaps. Learning disabilities. Autism. Emotional/behavior disorders. Giftedness. Study the related legal rights, policies, and education accommodations for students with disabilities. prereq: Psy 1001

CPSY 4329. Biological Foundations of Development. (; 3 cr. ; A-F or Audit; Every Spring)
Evolutionary theory and behavioral genetics applied to understanding of development of human behavior; formation of species-typical adaptive behavior and individual differences in infancy, childhood, and adolescence. prereq: CPSY 2301 / 3301 or equiv

CPSY 4331. Social and Personality Development. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Development of social relations and personality; research, methodology, and contrasting theoretical perspectives. Survey of findings on interpersonal relationships, the concept of self, prosocial and antisocial behavior, and acquisition of social roles. prereq: CPSY 2301 / 3301 or equiv

CPSY 4336. Development and Interpersonal Relationships. (3 cr. ; A-F or Audit; Every Fall)
Processes and functions of interactions with personal relationships across the lifespan; analysis of theory and research on developmental changes and influences.

CPSY 4341. Perceptual Development. (; 3 cr. ; Student Option; Every Fall)
Study how children learn to perceive and experience the world. Explore different approaches to studying brain function and the development of the sensory and perceptual systems and processes with focus on infant perception and the neurobiology of how the senses work. Cover a variety of developmental disorders of sensation and perception: learn about normal brain function by studying abnormal brain function. prereq: CPSY 2301 / 3301 or equiv

CPSY 4343. Cognitive Development. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to the scientific study of cognitive development (children's thinking) from infancy through adolescence. Focus on research and practical applications. Specific topic areas include infant perception and cognition, attention and memory development, language and symbolic thinking, social cognition, executive function. prereq: CPSY 2301 or 3301 or equivalent

CPSY 4345. Language Development and Communication. (; 3 cr. ; A-F or Audit; Every Spring)
How do children acquire language? Learn about acquisition of phonology (the sound system of the language), semantics (the meaning of units in the language), syntax (the structure of sentences), morphology (the structure of words, phrases, and sentences), and pragmatics (language use). Study English learning along with the acquisition of other spoken and signed languages. prereq: CPSY 2301 / 3301 or equiv

CPSY 4347W. Child Psychology Capstone. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Synthesize important themes and concepts from the CPSY undergraduate experience. Use knowledge of developmental psychology and research methods to complete various capstone assignments throughout the course. Students may find and evaluate high-quality empirical articles; write a literature review; create a hypothesis and design a behavioral coding system; work with peer research partners to collect data in the Lab School; and/or present work to peers and instructors in a professional format. Prereq: Senior and completion of CPSY 3308W (or approved equiv)

CPSY 4994. Directed Research in Developmental Psychology. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Serve as an Research Assistant in an Institute of Child Development faculty lab. Help plan/implement/document scientific studies and gain experience in research methodology. Duties vary based on lab and faculty projects that term, and are individually arranged with corresponding faculty and lab representatives. To register: students must first secure their own placement in a faculty research lab; see ICD website and departmental advisor for assistance. Students then submit completed contract to CPSY advisor for a permission number to register.

CPSY 4994V. Directed Research in Child Psychology (Honors Thesis). (WI; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
Individual empirical investigation. Students help plan/implement scientific studies while gaining experience/expertise in research methodology. prereq: 4 cr in CPsy, CPsy honors, instr consent, dept consent

CPSY 4996. Field Study in Child Psychology. (; 1-4 cr. [max 12 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Students secure an internship / volunteer / work opportunity in the community with children. Corresponding online coursework includes written reflections, journals, and career development activities. Credits are variable based on hours at your site. Students must submit a completed field study contract to the CPSY advisor in order to register.

CPSY 5171. Practicum: Applying Instructional Methods in the Elementary School. (2 cr. ; S-N only; Every Fall)
Practicum: Applying Instructional Methods in Elementary School is a semester long, full day experience during which teaching candidates gradually increase teaching responsibilities through observation and guided practice in an elementary (grade K-3) classroom, in a co-teaching model. The practicum experience is taken in connection with the Elementary Methods Teaching Block. Methods course teaching assignments are done during the practicum experience.

CPSY 5181. Clinical Experience in Elementary School Teaching. (10 cr. [max 20 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Students spend full days in the elementary classroom gradually assuming responsibility for teaching the class. Students prepare a portfolio based on criteria given. One seminar per week.

CPSY 5187. Capstone Project: Improvement of Teaching in Early Childhood Education. (2 cr. ; Student Option No Audit; Every Spring)
This is the capstone for teaching candidates in the M.Ed. in Early Childhood Education. Students will complete an in-depth reflective teaching portfolio and parallel assignments. The course requires demonstration of the linking of child development theory, knowledge of developmentally appropriate teaching, and reflective practice. prereq: Completion of all requirements for Early Childhood Teacher Licensure, other than CI 5181, which is taken concurrently.

CPSY 5241. Practicum in Early Childhood Education. (; 3 cr. ; A-F only; Every Fall & Spring)
This course offers a great introduction to the early childhood experience for those interested in working with young children. Helpful first course to explore Early Childhood major (can also count in CPSY BA). Students will review early development and learn how this knowledge is applied in educational and early care settings. Spend time observing early childhood programs through practicum experiences around the city.

CPSY 5251W. Social and Philosophical Foundations of Early Childhood Education. (WI; 3 cr. ; A-F only; Every Fall)
This course traces the history of early childhood education from Plato to the present, as well as explores various program models and the standards movement, including the Minnesota Early Learning Indicators. The course includes lecture, discussion, videos and vignettes, assignments, and requires students to begin developing a personal teaching philosophy. It is also a writing intensive course which incorporates writing instruction and professional writing expectations throughout all course assignments and activities.

CPSY 5252. Facilitating Social and Emotional Learning in Early Childhood Education. (3 cr. ; A-F only; Every Spring)
This course explores social and emotional development throughout the early childhood (0-8) years. Explore the variety of ways that social interactions and emotional understanding occur in young children with a special emphasis on the role of adults in facilitating these processes. Students will encounter a blend of theory and application as they learn to promote children's mental health, understand special circumstances such as trauma, and respond to challenging behaviors across early learning settings. prereq: CPSY 2301 or equiv or inst consent. For Early Childhood or ECSE students.

CPSY 5253. Facilitating Cognitive and Language Learning in Early Childhood Education. (3 cr. ; A-F only; Every Fall)
Overview of cognitive and language characteristics of children ages 0-8 years and of how teachers can plan curriculum to facilitate children's development in these areas. prereq: CPSY 2301 or equiv or inst consent. For Early Childhood or ECSE students.

CPSY 5254. Facilitating Creative and Motor Learning in Early Childhood Education. (2 cr. ; A-F only; Every Spring)
Learn how young children develop creativity and motor skills from birth - age 8. Engage in hands-on exploration of creative classroom materials and reflection. Complete action-oriented and applied assignments with small groups of children in early childhood education settings. prereq: CPSY 2301 or equiv or inst consent. For Early Childhood and ECSE students.

CPSY 5261. Early Learning in Infancy and Toddlerhood. (; 3 cr. ; Student Option; Periodic Summer)
This course provides an understanding of infant and toddler development. It offers multiple perspectives and current research related to the timetable of infant and toddler development, as well as the role of caregivers, environment, and culture in development. Special attention will be given to policies/ programming that concern infants, toddlers, and their families. Students will be expected to understand the nuanced and varied ways in which development unfolds, including areas of exceptionalities, as well as explore the roles of professionals and community members in supporting infant and toddler development.

CPSY 5281. Student Teaching in Early Childhood Education. (; 6-8 cr. ; S-N or Audit; Every Fall & Spring)
Student teaching plus weekly seminar for students pursuing the Early Childhood teaching licensure. Application of theory/research relating to teaching preschool children. Student teach either 5 mornings per week (7:45-12:30) for 8 credits or 3 afternoons per week (11:45-4:30) for 6 credits. In addition, ALL students participate in weekly (Fridays 12:30-2) seminars. Prereq: Early Childhood or ECSE student plus successful completion of CPSY 5241, 5252, 5253, and 5254.

CPSY 5301. Advanced Developmental Psychology. (; 3 cr. ; A-F or Audit; Every Fall & Summer)
This course is an exploration of life span development through the lenses of social, cultural, cognitive, biological, and learning theories and research. A primary emphasis of the class is on gaining better conceptual understanding of different perspectives on healthy development in order to support informed practical understanding of how to help children, adolescents, and adults progress through the developmental periods and to help them with the challenges they face across their lifespan. This course is intended for graduate students. Undergraduate students should take CPSY 2301 or 3301 and not also 5301.

CPSY 5302. Cognitive and Biological Development. (; 3 cr. ; Student Option; Every Fall)
This course concerns the development and function of thinking skills throughout the lifespan, touching upon several aspects of what makes humans unique. How are humans able to perceive, evaluate, interpret, infer, remember, symbolize, plan, evaluate, problem solve, and hypothesize? What influences the very emergence of such abilities and the nature of their function? What obstacles interfere with the development or the quality of cognitive processes? Brain development and other biological factors, and our relationships and other environmental factors influence our thinking and its development. Throughout this course, we will discuss how knowledge about cognitive development can influence our work with children, adolescents, and adults, in daily life, professional practice, and public policy. Among the many applications of our knowledge of cognitive development, in this course we will focus on select examples relevant to parenting, education, and media exposure, and on topics initiated by students. The course will address individual differences and cultural differences in cognitive development, and how knowledge about variation in ?typical? cognitive development provides an important foundation for understanding atypical cognitive development.

CPSY 5303. Social and Emotional Development. (; 3 cr. ; Student Option; Every Spring)
What are the roots of becoming who we are, as individuals in society? What roles do others ?parents, siblings, peers, teachers, and communities -- play in the socialization of an individual, and how stable are the forces and outcomes of these influences? This course focuses on social development throughout the human lifespan, with an emphasis on how biology, culture, and relationships influence that development. Throughout this course, we will discuss how knowledge about social development can inform our interpretation of

social issues and guide our reaction to them, in terms of behaviors, practices, and public policy. Among the many possible applications of social development, we focus in particular (but not exclusively) on positive psychology, widespread social problems such as poverty and social disparities, and prevention science. We emphasize individual differences in social development, and attend to the interplay between social development and cognition, learning, and biological development.

CPSY 5304. Research Methods in Applied Child and Adolescent Development. (; 3 cr. ; Student Option; Every Spring)
Applied child and adolescent development research builds upon on traditions of general, clinical, developmental, and educational psychology research, while focusing on efforts to address social needs, social problems, and public policy. Knowledge of scientifically sound and effective approaches to studying social problems and solutions will support those individuals who lead, contribute to, or use research. That is, knowledge gained from this course will support your development as an investigator or research associate, and it will also empower your role as a savvy consumer of the research you intend to apply to practice or policy.

CPSY 5306. Ethics and Professionalism in Applied Child and Adolescent Development. (; 2 cr. ; A-F only; Every Fall)
This course concerns ethical principles, issues, and codes relevant to research and practice in applied developmental psychology. These ethical considerations pertain to the work of professionals and researchers in communities, school, medical, and social agencies that serve children, youth, families, and adults. Throughout the course, we will consider the general principles that guide ethical behaviors and decision-making across settings, unique issues that might arise in specific settings, and the roles served by formal codes of conduct. We also consider the roots of ethical thinking, behavior, and decision-making, and the social and cultural influences on individual's developing sense of ethics.

CPSY 5310. Current Issues in Applied Child and Adolescent Development. (; 3 cr. ; Student Option No Audit; Periodic Fall & Spring)
Applied Child and Adolescent Development (ACAD) evolved from social scientists? efforts to contribute to solving problems in society. At its inception in the early 1980?s, Wertleib described the applied developmental scientist as ??being increasingly called upon to participate as social change agents and public policy advisors?. (occupying) an important position in many health care, education, human service and public policy settings.? ACAD also focuses on positive psychology, supporting healthy development as a preventative vs. only reactive approach to positive change; and appreciates the reciprocal relation between research and practice. This seminar course provides students with a sample of the wide range of current issues faced by applied developmental scientists.

CPSY 5360. Special Topics in Developmental Psychology. (; 1 cr. [max 3 cr.] ; Student Option; Every Summer)
Study in specialized areas of developmental psychology. Topics/credits vary.

CPSY 5413. Early Childhood and Public Policy. (; 3 cr. ; Student Option; Every Fall)
State, federal, and international policies and legislative activity touching first five years of a child's life. Family, community, and institutional roles in promoting children's social, cognitive, and emotional development. Issues related to health, mental health, poverty, developmental delays, and special needs.

CPSY 5414. Individualized Learning Experience in Early Childhood and Public Policy. (; 1-3 cr. ; Student Option; Periodic Spring)
Individualized, applied learning experience. Focuses on early childhood policy development, research, or evaluation. Students attend an early childhood policy lecture series and participate in small discussion groups and follow-up activities. prereq: Early Childhood Policy Certificate student, instr consent

CPSY 5501. Foundations in Infant and Early Childhood Mental Health I. (3 cr. ; A-F only; Fall Odd Year)
History, theory, research, concepts, and issues in infant mental health. Issues pertinent to difficulties in development. Readings, visual material. Expert guest lectures. prereq: [Baccalaureate degree in an early-childhood-related field from an accredited U.S. institution or documented equiv], experience in early childhood [research or practice]

CPSY 5503. Development and Psychopathology in Early Childhood. (; 3 cr. ; Student Option; Every Spring)
History, theory, research, concepts, and issues in infant mental health. Typical development. Difficulties in development. Expert guest lectures. Readings, visual material. prereq: 5501 or enrolled in MA program or IECMH graduate minor

CPSY 5506. Infant Observation Seminar I. (; 1 cr. ; S-N only; Spring Odd Year)
How an infant develops in context of family relationships over a 9-12 month period. Students observe an infant for one hour a week, write a narrative, and discuss observations.

CPSY 5508. Infant Observation Seminar II. (; 1 cr. ; S-N only; Summer Odd Year)
How an infant develops in context of family relationships over a nine- to twelve-month period. Students observe an infant for one hour a week, write a narrative, and discuss observations.

CPSY 5511. Infant Observation Seminar III. (; 1 cr. ; S-N only; Fall Even Year)
How an infant develops in context of family relationships over 9-12 month period. Students observe an infant for one hour a week, write a narrative, and discuss observations.

CPSY 5513. Early Childhood Assessment. (; 3 cr. ; Student Option; Every Summer)
The course introduces processes and evidence-based methods of early childhood assessment and diagnosis from a developmental, multi-disciplinary framework. prereq: CPSY 5503 or instructor permission

CPSY 5515. Assessment in Infant and Early Childhood Mental Health: NCAST. (; 2 cr. ; S-N only; Summer Odd Year)
Achieving reliability in two observational measures of parent-child interaction: (1) nursing child assessment feeding (2) teaching Sscales. Discussion, lecture, videotapes, listening/observation tasks. prereq: [Baccalaureate degree in early-childhood-related field from accredited U.S. institution or documented equiv], [experience in early childhood research or practice]

CPSY 5518. Prevention and Intervention in Early Childhood: Principles. (; 3 cr. ; A-F only; Every Fall)
Students design prevention/intervention programs and apply evidence-based strategies in workplace/practicum settings. Readings, in-class reflective practice groups. prereq: CPSY 5513

CPSY 5521. Prevention and Intervention in Early Childhood: Practice. (; 3 cr. ; A-F only; Spring Odd Year)
Students design prevention/intervention programs and apply evidence-based strategies in workplace/practicum settings. Readings, in-class reflective practice groups.

CPSY 5523. Reflective Supervision in Infant and Early Childhood Mental Health: Community-based. (; 1 cr. ; S-N only; Spring Even Year)
Principles/strategies of reflective supervision/ consultation. Discussion, final assignment designated by instructor.

CPSY 5525. Reflective Supervision in Infant and Early Childhood Mental Health: Clinical. (; 1 cr. ; S-N only; Spring Even Year)
Principles and strategies of reflective supervision/consultation. Discussion, final assignment designated by instructor.

CPSY 5601. Child Life Theory, Practice and Program Development. (; 3 cr. ; A-F only; Every Fall)
With a strong foundation in the theory and science of child development, Child Life Specialists promote effective coping for children experiencing the stress and uncertainty of illness, injury, disability, and hospitalization. Child Life Specialists translate the theory of developmental science into practice and advocate for patient- and family-centered care in medical settings. This course will provide an overview of history, fundamental theories, relevant research, and application of the Child Life Professional Practice. The Official Documents of the Child Life Council (2011) will be analyzed as a source of guiding principles for professional practice. An introduction to Child Life program development is also examined in this course. This course must be taken prior to a child life internship.

CPSY 5602. Developmental Perspectives on Illness and Injury in Healthcare. (; 3 cr. ; A-F only; Every Spring)
With a strong foundation in the theory and science of child development, Child

Life Specialists promote effective coping for children experiencing the stress and uncertainty of illness, injury, disability, and hospitalization. Child Life Specialists translate the theory of developmental science into practice and advocate for patient- and family-centered care in medical settings. This course will provide an overview of developmental theories as they apply to children and adolescents experiencing illness and injury in healthcare. Child Life preparation, relaxation interventions, and patient support practices for ill children will be examined.

CPSY 5603. Therapeutic Play for Child Life Practice. (; 3 cr. ; A-F only; Every Spring)
With a strong foundation in the theory and science of child development, Child Life Specialists promote effective coping for children experiencing the stress and uncertainty of illness, injury, disability, and hospitalization. Child Life Specialists translate the theory of developmental science into practice and advocate for patient- and family-centered care in medical settings. This course will provide an overview of the theoretical framework of play across childhood development and its role within pediatric healthcare settings and Child Life practice. Students will gain a professional understanding of therapeutic play interventions essential for facilitation of children?s coping and adjustment in various healthcare experiences.

CPSY 5604. Therapeutic Relationships: Supporting Children in Healthcare. (; 3 cr. ; A-F only; Every Fall)
With a strong foundation in the theory and science of child development, Child Life Specialists promote effective coping for children experiencing the stress and uncertainty of illness, injury, disability, and hospitalization. Child Life Specialists translate the theory of developmental science into practice and advocate for patient- and family-centered care in medical settings. This course will provide an overview of the role of Child Life professionals in therapeutic relationships with patients, caregivers and families. The theoretical foundations of therapeutic relationships will be examined and students will gain a working knowledge of the philosophies and principles underpinning patient and family-centered care.

CPSY 5605. Childhood Death and Bereavement. (; 3 cr. ; A-F only; Every Fall)
With a strong foundation in the theory and science of child development, Child Life Specialists promote effective coping for children experiencing the stress and uncertainty of illness, injury, disability, and hospitalization. Child Life Specialists translate the theory of developmental science into practice and advocate for patient- and family-centered care in medical settings. This course will provide an overview of the fundamental theories of children?s concept of death and the grief process across development. Students will gain an understanding of how Child Life Specialists collaborate with multidisciplinary care teams to support and provide culturally competent care to pediatric patients and their families at end-of-life and bereavement.

CPSY 5981. Cross-Cultural Experiences in Education and English Teaching in Brazil. (GP; 12 cr. [max 24 cr.] ; S-N only; Periodic Fall & Spring)
This course provides an experiential introduction to the process of learning and teaching a second language to young children in an international setting. Students will engage in inquiry, planning, classroom teaching and reflection as they participate on a team developing curriculum in a partial day English immersion classroom. Through readings, videos, a homestay experience, small group projects, classroom observations, and participation as part of a team of English teachers in Brazil, students will gain an introduction to Brazilian culture, learn the basics of the local education system, and experience firsthand what it is like to learn a new language. Students will next be exposed to some of the basic elements of early childhood second language teaching, will help to plan and co-deliver relevant and appropriate curriculum, write lesson plans and engage in reflective practice with their teaching team. Finally, because of the cultural immersion element of the class, students will be supported to 1) reflect on their personal cultural adjustment process, 2) develop an effective working relationship with their co-teachers, and 3) consider the ethical dilemma present in the provision of educational opportunity to Brazil?s marginalized communities.

CPSY 5991. Independent Study in Child Development. (1-12 cr. [max 24 cr.] ; Student Option No Audit; Periodic Fall & Spring)
Independent study arranged with child development faculty member.

CPSY 5996. Field Experience in Applied Child and Adolescent Development. (1-12 cr. [max 24 cr.] ; S-N only; Periodic Fall, Spring & Summer)
Emphasizes field experiences focusing on the development of children and adolescents as individuals or members of groups; may include interactions with children and adolescents in natural settings, or research on applied topics or with atypical populations.

China Executive MBA (CHMB)

CHMB 5800. Organizational Behavior. (; 3 cr. ; A-F only; Every Fall)
Theories/frameworks for analyzing behavior of individuals, groups, and the organization itself. Emphasizes making decisions and developing action plans that enable managers to provide effective leadership. Personnel selection, reward/compensation systems, collective bargaining.

CHMB 5801. Financial Accounting. (; 3 cr. ; A-F only; Every Fall)
External accounting system used by firms to measure their economic performance and financial position. Students analyze corporate financial reports to discover impact of significant economic events. Rise of financial reporting standards and financial intermediaries in efficient allocation of capital in a modern economy. Discussions, cases.

CHMB 5802. Statistics and Decision Making. (; 3 cr. ; A-F only; Every Fall)
Exploratory data analysis, basic inferential procedures, statistical process control, regression analysis.

CHMB 5803. Operations Management. (; 3 cr. ; A-F only; Every Fall)
How to manage operations function in manufacturing/service organizations. Emphasizes strategic impact of operations decisions. Operations strategy, process design, productivity improvement, quality management, business process re-engineering, service quality, forecasting, demand management, inventory management, production planning, project management, scheduling, supply chain management, international operations management.

CHMB 5804. Managerial Accounting. (; 3 cr. ; A-F only; Every Spring)
How to analyze accounting for use in management decisions. Planning and control. Transfer pricing, performance measurements, cost behavior, cost allocation, activity based costing, standard costs.

CHMB 5805. Financial Management. (; 3 cr. ; A-F only; Every Spring)
Theory/practice of finance from analytical approach. Students apply basic financial concepts of risk, return, and valuation to decisions that a corporate financial officer or person engaged in small business must make about sources/uses of funds during changing financial markets.

CHMB 5806. Marketing Management. (; 3 cr. ; A-F only; Every Spring)
Developing/implementing most appropriate combination of variables to carry out a firm's strategy in its target markets. Applying analytic perspectives, concepts, and decision tools of marketing to decisions in product offering, distribution, pricing, and communication.

CHMB 5807. Business Strategy. (; 3 cr. ; A-F only; Every Spring)
Formulating strategy for an enterprise. Shaping mission, product-market choice, and organizational character. Shaping allocation of resources to meet organiational circumstances and conflicting stockholder interests. Situational analysis, strategy development. Written/oral presentation of strategic analyses/recommendations.

CHMB 5808. Strategic Marketing. (; 3 cr. ; A-F only;)
Product markets in which an organization should compete. Sustainable competitive advantage that should be developed. Matching marketing strategy with the environment. Coordination between marketing and other business functions. Organization/management of marketing. Case studies.

CHMB 5809. Advanced Financial Management. (; 3 cr. ; A-F only;)
Executive level corporate financial policy. Students are challenged to apply basic principles of finance on their own initiative. Rigorous case-oriented approach.

CHMB 5810. International Environment. (; 1.5 cr. ; A-F only; Every Fall)

How to develop an integrative framework for dealing with international activities of a newly exporting company or a full-fledged multinational. How international environment constrains decision-making, how currency prices are determined, and how to manage exchange risk in coordination with strategic choices of the firm. prereq: China Executive MBA student

CHMB 5811. Information Technology Management. (; 3 cr. ; A-F only;)
Managing information resources/technology. Students gain exposure to various information technologies, examine their applications, explore competitive advantages associated with information technology, and address organizational/managerial implications.

CHMB 5813. Ethics and Leadership. (; 3 cr. ; A-F only; Every Fall & Spring)
Role that ethics can play in corporate strategy. Key concepts include stakeholder management, individual/collective responsibility, and international business ethics. Theoretical considerations applied to issues such as a business's responsibility to the environment, truthful/tasteful advertising, obligations to local community, and managing a diverse workforce.

CHMB 5815. International Human Resources Management. (; 3 cr. ; A-F only; Every Spring)
Topics reflect the strengths, talents, and interests of the class. Integrates different aspects of the curriculum while not being limited by a specific area or paradigm.

CHMB 5816. International Residency. (6 cr. ; A-F only; Every Fall & Spring)
Students travel to an international location for 11 days and engage in discussions with international colleagues, apply program concepts, and develop a broader sensitivity to cultural/social differences. Pre-trip preparation, on-site discussion, and trip assignment are required.

CHMB 5817. China's Economy. (; 1.5 cr. ; A-F or Audit; Every Spring)
Focusing on China's economy, this course is designed as a required course for all China Executive MBA students. prereq: China Executive MBA student

CHMB 5818. Law and Business. (; 3 cr. [max 6 cr.] ; A-F only; Every Spring)
Legal/regulatory environment of business operations in China.

Chinese (CHN)

CHN 1011. Beginning Modern Chinese I. (5 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Summer)
Speaking/reading modern standard Chinese through structured practice.

CHN 1012. Beginning Modern Chinese II. (5 cr. ; Student Option No Audit; Every Spring & Summer)
Speaking/reading modern standard Chinese through structured practice. prereq: 1011 or equiv or instr consent

CHN 1015. Accelerated Beginning Modern Chinese. (; 5 cr. ; Student Option No Audit; Every Fall)
Mandarin Chinese. Reading, writing, standard pronunciation. Meets with 4005. prereq: Oral/aural skills or speaker of other Chinese dialect recommended

CHN 3016. Accelerated Intermediate Modern Chinese. (; 5 cr. ; Student Option No Audit; Every Spring)
Continuation of CHN 1015. Mandarin Chinese course designed primarily for students with oral/aural skills but with little or no exposure to reading and writing. Also for speakers of other Chinese dialects and others with prior experience. Concentration on reading, writing, and standard pronunciation. Equivalent to two semesters, Chinese 3021-3022. Upon completion, student may enter Advanced Modern Chinese, Chinese 3031. prereq: 1012 or 1015; oral/aural skills or speaker of other Chinese dialect recommended

CHN 3021. Intermediate Modern Chinese I. (5 cr. ; Student Option No Audit; Every Fall)
Modern standard Chinese skills developed further through conversations, writing, reading. prereq: 1012 or 1015 or equiv or instr consent

CHN 3022. Intermediate Modern Chinese II. (5 cr. ; Student Option No Audit; Every Spring)
Modern standard Chinese skills developed further through conversation/reading. prereq: 3021

CHN 3031. Advanced Modern Chinese I. (4 cr. ; Student Option No Audit; Every Fall)
Reading/analysis of 20th-century texts. prereq: 3022 or equiv or instr consent

CHN 3032. Advanced Modern Chinese II. (4 cr. ; Student Option No Audit; Every Spring)
Reading/analysis of 20th-century texts. prereq: 3031 or equiv or instr consent

CHN 3161. Movies in Modern China. (; 3 cr. ; Student Option No Audit; Periodic Summer)
Taught entirely in Chinese, this course introduces students to modern Chinese cinema. Each week, students will view and discuss Chinese movies (without subtitles) and learn the basic concepts of film studies, historical movements in Chinese cinema, key filmmakers in China, and how Chinese social issues are represented in the movies. This course is designed for students who have completed Chinese immersion school or have advanced proficiency in listening, reading, speaking, and writing in Mandarin Chinese. Not open to native Chinese speakers, except under special circumstances. prereq: CHN 3032 or permission of instructor. Lectures and assignments are primarily online with one class meeting per week on the UMN campus.

CHN 3201. Chinese Calligraphy. (; 2 cr. ; Student Option; Every Fall & Spring)
Appreciation and execution of Chinese calligraphy through guided practice.

CHN 3202. Intermediate Chinese Calligraphy. (; 2 cr. ; Student Option; Every Spring)
Advanced techniques of composing Chinese characters using regular style of Chinese calligraphy. prereq: 3201 or instr consent

CHN 3203. Advanced Chinese Handwriting. (2 cr. ; Student Option; Every Spring)
This course is designed for students participating in the Chinese Flagship program who have already completed CHN 3201 (Chinese Calligraphy). Students with a Chinese language background may also enroll with the instructor's permission. The course will be taught in Mandarin Chinese. Students will learn the proper methods of composing a Chinese character using pen/pencil. With this foundation, they will advance to writing ancient poetry, couplets, and classical and modern essays. As students learn to write beautiful characters in these texts, they will also gain a better understanding of Chinese culture and literature. Students will also have the opportunity to read and recognize characters written in the Running Script and Casual Script. A deeper understanding of the intricacies in written script allows students to better appreciate the beauty of Chinese literature and engage with its diverse philosophies.

CHN 3290. Chinese Language Teaching Tutorial. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Students tutor beginning students of Chinese and are part of department's Chinese language team. prereq: Grade of A in 3032

CHN 3920. Topics in Chinese Culture. (; 1-2 cr. [max 6 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Selected topics in Chinese culture. Topics specified in the Class Schedule.

CHN 3993. Directed Studies. (1-5 cr. [max 15 cr.] ; Student Option No Audit; Periodic Fall, Spring & Summer)
Guided individual study of Chinese language or linguistics. prereq: instr consent, dept consent, college consent

CHN 4001. Beginning Modern Chinese I for Graduate Student Research. (5 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Summer)
Speaking/reading modern standard Chinese through structured practice. Meets with 1011.

CHN 4002. Beginning Modern Chinese II for Graduate Student Research. (5 cr. [max 6 cr.] ; Student Option No Audit; Every Spring & Summer)
Speaking/reading modern standard Chinese through structured practice. Meets with 1012. prereq: 4001

CHN 4003. Intermediate Modern Chinese I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall & Summer)
Modern standard Chinese skills developed through conversations, writing, reading. Meets with 3021. prereq: 4002

CHN 4004. Intermediate Modern Chinese II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Modern standard Chinese skills developed through conversation/reading. Meets with 3022. prereq: 4003

CHN 4005. Accelerated Beginning Modern Chinese for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)

Mandarin Chinese. Reading, writing, standard pronunciation. prereq: Grad student, instr consent; oral/aural skills or other Chinese dialect recommended

CHN 4006. Accelerated Intermediate Modern Chinese for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Continuation of CHN 1015/4005. Mandarin Chinese course designed primarily for students with oral/aural skills but with little or no exposure to reading and writing. Also for speakers of other Chinese dialects and others with prior experience. Concentration on reading, writing, and standard pronunciation. Equivalent to two semesters, Chinese 3021-3022. Upon completion, student may enter Advanced Modern Chinese, Chinese 3031. prereq: 1012 or 1015; oral/aural skills or other Chinese dialect recommended

CHN 4007. Advanced Modern Chinese I for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Fall)
Reading and analysis of 20th-century texts. Meets with 3031. prereq: 4004

CHN 4008. Advanced Modern Chinese II for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Spring)
Reading and analysis of 20th-century texts. Meets with 3032. prereq: 4007

CHN 4021. Flagship Chinese for Academic Purposes. (2 cr. ; A-F only; Every Fall)
This content-based instruction course focuses on using the target language (standard Mandarin) properly in academic and professional social settings, and it is designed to prepare Chinese Flagship students for their direct enrollment courses during their capstone year in China. Students will apply Chinese to topics in their major, including writing academic essays and giving professional presentations on specific topics within their domain. Instructor consent required.

CHN 4022. Flagship Chinese for Professional Purposes. (2 cr. ; A-F only; Every Spring)
This course prepares Chinese Flagship students for their internship experience in China during their capstone year. Taught entirely in Mandarin Chinese, students explore various job-searching sites, create their own resume and cover letter in Chinese, and participate in mock job interviews for careers pertaining to their professional interests. Students perform basic tasks within their own work area and collaborate with peers from other Flagship universities to complete group work projects. Chinese business etiquette and culture are also embedded in the curriculum.

CHN 4040. Chinese Content-Based Instruction. (; 1-3 cr. [max 9 cr.] ; S-N or Audit; Every Fall & Spring)
This course is designed for students of advanced Chinese (CHN 4041 and above) especially students in the Chinese Flagship program. It is intended to bridge their language learning experience to the cultural studies courses on modern Chinese literature, visual culture, popular music, and contemporary Chinese society (ALL 3336, 3337, and others). Content-based instruction addresses Chinese creative and cultural production as contextualized by the Cultural Revolution, during and after the Mao era, China's "opening and reform" as well as by the commercialization and globalization of culture. Taught primarily in Mandarin Chinese, the course focuses on the discussion of materials and issues, not reading of texts. Students will be provided with bilingual materials, including vocabulary lists and original texts to aid the discussions. Not open to native Chinese speakers, except under special circumstances. Permission of Instructor.

CHN 4041. Advanced Readings in Modern Chinese I. (4 cr. ; Student Option; Every Fall)
Writings of different styles. Short stories/essays written since 1949 that reflect Chinese society. Internet writing, use of language. Writings reflection of contemporary Chinese society, its culture/philosophies. prereq: 3032 or instr consent

CHN 4042. Advanced Readings in Modern Chinese II. (4 cr. ; Student Option; Every Spring)
Writings of different styles. Short stories/essays written since 1949 that reflect Chinese society. Internet writing, use of language. Writings' reflection of contemporary Chinese society, its culture/philosophies. prereq: 3032 or instr consent

CHN 5040. Readings in Chinese Texts. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Fall & Spring)
Students read authentic materials of various types to increase reading/speaking ability. Topics specified in Class Schedule. prereq: 4042 or equiv or instr consent

CHN 5041. Media Chinese. (3 cr. ; A-F or Audit; Every Fall)
Conducted 100% in Mandarin Chinese, this course trains students to comprehend media Chinese by listening to and viewing Chinese television programs and online/ internet resources. Course content includes international and Chinese national news, social issues, historical events, and interpersonal relations relevant to modern Chinese society, history, and culture. Students must have taken 3-4 years of college-level Chinese or demonstrate the same level of Chinese proficiency.

CHN 5042. Contemporary Chinese Texts 1949-present. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Advanced Chinese language course focused on contemporary Chinese short stories, novelettes, and prose written since 1949, especially from 1978 to the present. These literary works explore various aspects of contemporary Chinese society, history, and culture including: social prejudices and discrimination against the mentally and physically disadvantaged, the Anti-Rightist Movement, the Cultural Revolution, the drug problem, male-female relationships, education, parental love (and lack thereof), traditional Chinese views of life, rape and sex, influence from the West, and more. Class discussion focuses on the use of the language, the social interpretation of the texts, and the Chinese cultural and philosophical implications found in those works. prereq: CHN 4042 or instructor consent. Recommended: CHN 5041

CHN 5211. Introductory Classical Chinese I. (3 cr. ; Student Option; Periodic Fall)
Reading excerpts from canonical Chinese texts. Transnational nature of Classical Chinese/its importance in study of East Asian cultures. Taught in English. prereq: Two years of an East Asian language (Chinese, Japanese, Korean) or equivalent or instr consent

CHN 5212. Introductory Classical Chinese II. (3 cr. ; Student Option; Periodic Spring)
Reading excerpts from canonical Chinese texts. Transnational nature of Classical Chinese/its importance in study of East Asian cultures. Taught in English. prereq: 5211 and two years of an East Asian language (Chinese, Japanese, Korean) or its equivalent or instr consent

CHN 5213. Literary Chinese in the Analects. (3 cr. ; Student Option No Audit; Every Fall)
The "Analects" is a collection of the sayings of Confucius and his disciples. As one of the most revered classics in the Chinese tradition, it is essential for understanding Chinese cultural values, and contains complex philosophical themes for critical thinking. Linguistically, the "Analects" provides an excellent example of the classical Chinese language, and is the source of many common Chinese idioms. This class takes key passages from the "Analects" in the original and aims to equip students with a holistic understanding of Chinese language, culture, and history. Prerequisite: CHN 3022 or instructor consent.

CHN 5214. Classical Chinese Language and Culture. (3 cr. ; Student Option No Audit; Periodic Fall & Spring)
Classical Chinese, or literary Chinese, was the formal written language in China until the early 20th century, and also, during various periods, in Japan, Korea, and Vietnam. It is closely related to the modern Chinese language, especially for formal writing, and its literary heritage has laid the cornerstone of Chinese cultural values and worldviews. This class guides the students to comprehend the linguistic and cultural characteristics of classical Chinese, introduces them to key aspects of the tradition, and develops skills for translating classical Chinese into modern Chinese and English texts. The prerequisite is fourth-year Chinese (CHN 4042) or above. Please note that this class is entirely taught in modern Mandarin Chinese, although English study guides will be provided throughout the course.

CHN 5393. Directed Study. (1-5 cr. [max 18 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study. Prereq-instr consent, dept consent, college consent.

Civil, Environ, and Geo-Engin (CEGE)

CEGE 1101. Introduction to Civil, Environmental, and Geo-Engineering. (1 cr. ; A-F or Audit; Every Fall)
Introduction to civil, environmental, and geo-engineering practice and the vital role these fields play in our society. Presentations made by faculty and professional engineers include current and future challenges, research and career opportunities, and case studies of projects. prereq: Lower div

CEGE 1501. Environmental Issues and Solutions. (ENV,PHYS; 4 cr. ; Student Option; Every Fall & Spring)
Open to students from all colleges. Importance of science in understanding/solving various environmental problems. Case studies. Laboratory exercises. prereq: High school chemistry or equiv, one yr high school algebra

CEGE 3101. Computer Applications I. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Computer tools and computational methods for solving civil, environmental, and geo-engineering problems. Solving systems of linear/nonlinear equations, parameter estimation and engineeringmodel fitting, numerical differentiation/integration, numerical solution of ordinary and partial differential equations. prereq: MATH 1372, PHYS 1301, CSE or instructor consent

CEGE 3102. Uncertainty and Decision Analysis. (3 cr. ; A-F or Audit; Every Fall & Spring)
Stochastic models, their usefulness in reasoning about uncertainty in civil, environmental, and geo-engineering. Techniques for identifying, fitting, and validating models using data samples. Testing hypotheses about, and bounding uncertainty attached to, engineering parameters. Applications to civil, environmental, and geo-engineering. prereq: MATH 1372 or equiv

CEGE 3103. Engineering Ethics and Professional Practice. (1 cr. ; A-F only; Every Fall & Spring)
Introduction to ethical thinking, legal aspects of professional practice, codes of ethics for engineers, ethical problem-solving using case studies. Prereq: Civil Eng. or Environmental Eng. or Geoengineering Upper Division

CEGE 3111. CADD for Civil Engineers. (2 cr. ; A-F only; Every Fall & Spring)
Introduction to AutoCAD and Civil 3D software. Students complete all tasks to design two-lane roadways and subdivision using civil engineering design software, including topography, plan/profile, contours, cross sections, and quantity calculations. prereq: CEGE 3201

CEGE 3190. Curricular Practical Training Internship. (1 cr. [max 2 cr.] ; S-N only; Every Fall, Spring & Summer)
Work assignment involving advanced civil engineering. Reviewed by the director of undergraduate studies. Prereq: CE, EnvE, or Geo major

CEGE 3190. Curricular Practical Training Internship. (1 cr. [max 2 cr.] ; S-N only; Every Fall, Spring & Summer)
Work assignment involving advanced civil engineering. Reviewed by the director of undergraduate studies. Prereq: CE, EnvE, or Geo major

CEGE 3201. Transportation Engineering. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Applying laws of motion to vehicle performance, determining constraints for highway designs. Traffic flow principles, their relation to capacity and level of service. Geometric design, traffic control, pavement design, transportation planning. prereq: PHYS 1301, (CEGE 3101, CEGE 3102 can be taken concurrently)

CEGE 3202. Surveying & Mapping. (; 2 cr. ; A-F or Audit; Every Fall & Summer)
Theory of precision measurements of distance, elevation, angle, and direction of points/ lines above, on, or beneath earth's surface. Establishing such points/lines. Elements of coordinate systems, datum planes, and maps. prereq: MATH 1271, MATH 1272], [CSE or Construction Mgmt]

CEGE 3301. Soil Mechanics I. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Index properties and soil classification. Effective stress. Permeability and seepage. Elasticity theory. One-dimensional compression and consolidation; settlements. Compaction; cut and fill problems. prereq: upper division CSE, AEM 3031, CEGE 3101, or instructor consent

CEGE 3401. Linear Structural Analysis. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Analysis of determinate/indeterminate trusses and frames. Application of energy methods and virtual work technique in analysis of structural deformations. Force-based and displacement-based methods in analysis of indeterminate structures. Influence lines and critical load configurations. prereq: AEM 3031, upper division CSE or instructor consent

CEGE 3402. Civil Engineering Materials. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Concepts and modeling of behavior mechanisms for civil engineering materials such as concrete, masonry, metals, asphalt, plastics, and wood. Standard specifications for material properties. Techniques for testing. prereq: AEM 3031

CEGE 3501. Introduction to Environmental Engineering. (ENV; 3 cr. ; A-F or Audit; Every Fall & Spring)
A quantitative approach to environmental problems, including the development of mass and energy balances and the application of fundamental principles of environmental chemistry and microbiology. Meets the University of Minnesota's liberal education environment theme through the incorporation of environmental function, problems, and solutions throughout the course. prereq: Chem 1062, Phys 1302, Math 1372 or equivalent

CEGE 3502. Fluid Mechanics. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Fluid statics/dynamics. Kinematics of fluid flow, equations of motion, pressure-velocity relationships, viscous effects, boundary layers. Momentum/energy equations. Lift/drag. Flow in pipes and pipe systems. Hydraulic machinery. Fluid measurements. prereq: [AEM 2012 or AEM 3031], Math 2373, CEGE 3101

CEGE 3541. Environmental Engineering Laboratory. (3 cr. ; A-F only; Every Fall)
Laboratory-based course focused on physical, chemical, and microbiological measurements used in analysis of air, water, and solid samples. Applications include water quality, water treatment, wastewater treatment, hazardous waste treatment/remediation, air pollution, and environmental sensing. prereq: CEGE 3501

CEGE 4000H. Honors Research Seminar. (; 1 cr. [max 2 cr.] ; A-F only; Every Fall & Spring)
Attend twelve (12) research seminars in civil, environmental, and geo- engineering given by faculty members and visiting scholars. Write and submit a summary of each attended seminar. Explicitly interact with four or more of the speakers. prereq: Upper div CE, EnvE, GeoE, Enrolled in the University Honors Program or instructor consent

CEGE 4011. Special Topics. (; 1-4 cr. [max 12 cr.] ; A-F only; Periodic Fall & Spring)
Topics/credits vary. prereq: Upper div CSE

CEGE 4094H. Senior Honors Thesis. (; 2 cr. ; A-F only; Every Fall)
Writing thesis under direction of CE faculty member. prereq: Upper div CE

CEGE 4101W. Project Management and Engineering Economics. (WI; 3 cr. ; A-F only; Every Fall & Spring)
Civil, Environmental, and Geo-engineering project management. Project planning, scheduling, and controlling. Project permitting. Financing, bidding, and contracts for public projects. Budgeting, staffing, task cost control. Critical path method and graphical project representations. Project management and leadership. Risk management. Engineering economics. Prerequisites: Civil Eng. or Environmental Eng. or Geoengineering upper division

CEGE 4102W. Capstone Design for Civil Engineering. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Teams formulate/solve civil engineering problems. From conceptual stage through preliminary planning, public hearings, design, environmental impact statements, final plans/ specifications, and award of contracts. prereq: 4101W, 4301, 4401, 4501, 4502

CEGE 4103W. Capstone Design for Environmental Engineering. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Team participation in formulation/solution of open-ended civil engineering problems, from conceptual stage through preliminary planning, public hearings, design, and environmental impact statements, to preparation of final plans/ specifications and award of contracts. Prereqs: CEGE 4101W, 4501, 4502

CEGE 4104W. Capstone Design for Geoengineering. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Team participation in formulation/solution of open-ended civil engineering problems, from

conceptual stage through preliminary planning, public hearings, design, and environmental impact statements, to preparation of final plans/ specifications and award of contracts. prereq: CEGE 4101W, CEGE 4121, CEGE 4311, CEGE 4351, ESCI 4501

CEGE 4121. Computer Applications II. (; 3 cr. ; A-F or Audit; Every Spring)
Advanced application of computer tools/ methods in solving ordinary/partial differential equations from civil engineering problems. Spreadsheet, MatLab programming. Methods may include finite differences, boundary element, finite element, and control volume finite element. prereq: CEGE 3101, MATH 2373 or equivalent, MATH 2374 or equivalent, upper division CSE or instructor consent

CEGE 4170. Independent Study I. (; 1-4 cr. ; Student Option; Every Fall)
Special studies in planning, designing, or analyzing civil engineering systems. Lab problems, literature studies, or reports supervised by staff. prereq: instr consent

CEGE 4180. Independent Study II. (; 1-4 cr. ; Student Option; Every Spring & Summer)
Special studies in the planning, design, or analysis of civil engineering systems. Individual lab research problems, literature studies, reports. Supervised by staff. prereq: instr consent

CEGE 4190. Engineering Co-op Assignment. (; 2-6 cr. ; A-F only; Every Fall, Spring & Summer)
Formal written report of work during six-month professional assignment. prereq: Upper div CE, approval of department co-op director

CEGE 4194. Directed Research. (1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Special studies in planning, designing, or analyzing civil, environmental, and geo-engineering systems. Lab problems, literature studies, or reports supervised by staff. Prereq: Instructor Consent

CEGE 4201. Principles of Highway Design. (; 3 cr. ; A-F or Audit; Every Spring)
Vertical and horizontal alignment, cross-sections and earthwork computations, roadside design, highway capacity, impact of vehicle type on geometric design, intersection design, safety impacts of highway design. prereq: upper division CSE student, CEGE 3201 or instr consent

CEGE 4211. Traffic Engineering. (; 3 cr. ; A-F or Audit; Periodic Spring)
Principles of vehicle/driver performance as they apply to safe/efficient operation of highways. Design/use of traffic control devices. Capacity/ level of service. Trip generation, traffic impact analysis. Safety/traffic studies. prereq: CEGE 3201, CEGE 3102 or equivalent, upper division CSE or instructor consent

CEGE 4253. Pavement Engineering and Management. (; 3 cr. ; A-F or Audit; Every Spring)
History of road construction. Asphalt pavement. Portland cement concrete pavement construction. Construction technologies. Maintaining flexible/rigid pavement systems. Manual/automated assessment. Definitions of performance. Optimization. prereq: [3201, 3301, 3402, upper div CSE] or grad student or instr consent

CEGE 4301. Soil Mechanics II. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Traction and stress. Mohr-Coulomb failure criterion. Experiments on soil strength. Earth pressure theories, rigid/flexible retaining walls. Stability of slopes. Bearing capacity of foundations. prereq: CEGE 3301, upper div CSE, or instr consent

CEGE 4311. Rock Mechanics. (; 4 cr. ; A-F or Audit; Every Fall)
Site investigation/classification. In-situ stresses. Strength/failure criteria of rock/interfaces. Stereographic projections. Kinematic analysis of rock slopes. Block size/stability. Reinforcement. Methods of stress analysis. Pillar design, stiffness effects. Elastoplastic analysis. Rock-support interaction. Numerical modeling of support systems. Lab testing of rock. prereq: CEGE 3301 or instr consent

CEGE 4351. Groundwater Mechanics. (; 3 cr. ; A-F or Audit; Every Fall)
Shallow confined, unconfined, and sem-confined flows. Flow in two coupled aquifers separated by leaky layers. Transient flow. Flow toward wells. Streamlines/pathlines in two/three dimensions. Contaminant transport. Elementary computer modeling. prereq: CEGE 3101or BBE 2003, CEGE 3502 or BBE 3012, upper division

CEGE 4352. Groundwater Modeling. (; 3 cr. ; A-F or Audit; Periodic Spring)
Analytic element method. Mathematical/ computer modeling of single/multiple aquifer systems. Groundwater recovery. Field problems. Theory/application of simple contaminant transport models, including capture zone analysis. prereq: 4351, upper div CSE or grad student or instr consent

CEGE 4401. Steel and Reinforced Concrete Design. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Limit-states design. Steel: tension, compression, flexure, combined compression/ flexure, connections. Reinforced concrete: beams (rectangular, T-sections, doubly reinforced) in flexure/shear, one-way slabs, serviceability, development length, reinforcement detailing, short columns. prereq: Grade of at least C- in 3401, concurrent registration is required (or allowed) in 3402, [upper div CSE or grad student]

CEGE 4411. Matrix Structural Analysis. (; 3 cr. ; A-F or Audit; Every Spring)
Analysis of linear structural systems by matrix methods, stiffness, and flexibility methods. Introduction to computerized structural analysis of trusses/frames, including coding. prereq: CEGE 3101, CEGE 3401, upper div CSE or grad student or instr consent

CEGE 4412. Reinforced Concrete II. (; 3 cr. ; A-F or Audit; Every Spring)
Advanced design of reinforced concrete structures: footings, retaining walls, columns with slenderness effects and biaxial loading, torsion, continuous systems, two-way floor systems. prereq: CEGE 4401, upper div CSE or instr consent; 4411 recommended

CEGE 4413. Steel Design II. (; 3 cr. ; A-F or Audit; Every Fall)
Design of steel and composite steel/concrete structures, including composite beams, plate girders, beam-columns, connections and multi-story frames. prereq: CEGE 4401, upper div CSE or instr consent; 4411 recommended

CEGE 4416. Sensors in Infrastructure. (3 cr. ; A-F only; Periodic Fall)
As sensors become part of practice in CEGE fields, an understanding of instrumentation and their application to engineering problems becomes essential. This course will highlight the interdisciplinary nature of using sensors in engineering applications and how previous coursework can be applied. The sensors covered will range from mechanical measurements (e.g. strain, displacement, and acceleration) to environmental measurements (e.g. temperature, oxygen concentration, and wind speed), and non-destructive techniques. In addition to class lectures, instruments and data acquisition will be explored in lab experiments. Prerequisites: CEGE 3402, AEM 3031, CSE Upper division or instructor consent

CEGE 4417. Structural Engineering Design of Wood Buildings. (3 cr. ; A-F or Audit; Every Fall)
This course provides an in-depth presentation of topics in design of wood structures. The course is intended for advanced undergraduate and entering graduate students who have completed CEGE 4401 or equivalent. The course extends basic concepts of member design, which are covered in CEGE 4401, to wood members and simple wood structures. Knowledge of basic concrete and steel design, construction materials and structural analysis is presumed. Topics covered in the course include: wood properties and grading; design criteria using sawn wood, glue-laminated wood, and plywood; design of beams, columns, trusses, shear diaphragms and floors; connections for wood structures; and building codes and test methods. Prereqs: CEGE 4401 or equivalent

CEGE 4501. Hydrologic Design. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Hydrologic cycle: precipitation, evaporation, infiltration runoff. Flood routing through rivers and reservoirs. Statistical analysis of hydrologic data and estimation of design flows. Open channel flow, flow through conduits. Detention basin design, hydraulic structure sizing, estimation of risk of flooding. prereq: CEGE 3502

CEGE 4502. Water and Wastewater Treatment. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Theory and design of physical, chemical, and biological processes for the treatment of water and wastewater. prereq: CEGE 3501 or ChEn 2001 or BBE 3033

CEGE 4511. Hydraulic Structures. (; 3 cr. ; A-F or Audit; Periodic Fall)

Hydraulic design procedures for culverts, dams, spillways, outlet works, and river control works. Drop structures, water intakes, bridge crossings. prereq: CEGE 4501, upper division CSE student, Grad student or instructor consent

CEGE 4512. Open Channel Hydraulics. (; 4 cr. ; A-F or Audit; Periodic Fall & Spring)
Theories of flow in open channels, including gradually varied and rapidly varied flows, steady and unsteady flows. Computational methods for unsteady open channel flows, applications to flood routing. Introduction to moveable bed mechanics.

CEGE 4513. Energy Conversion from Wind Hydro and Solar Resources. (3 cr. ; A-F only; Periodic Fall)
During this class the physical principles of energy conversion from alternative resources as wind, hydro and solar will be presented and discussed, with an emphasis on fluid mechanics and geophysical flows (atmospheric boundary layer, rivers, tidal flows). We will start with the resource assessment devoted to quantify the available energy in the environment (wind, rivers, and sun). Each energy resource module will include basic economic principles and assumption enabling the quantification of the efficiency and the costs of energy transformation, as well as an estimate of environmental effects (when possible). We will focus on the details on wind, streams, wave and solar power using conservation equations and basic principles of thermodynamics and fluid mechanics. prereqs: CEGE 3502 or equivalent

CEGE 4522. Review of Introductory Fluid Mechanics for Graduate Students. (3 cr. ; A-F or Audit; Every Fall & Spring)
Fluid statics/dynamics. Kinematics of fluid flow, equations of motion, pressure-velocity relationships, viscous effects, boundary layers. Momentum/energy equations. Lift/drag. Flow in pipes and pipe systems. Hydraulic machinery. Fluid measurements

CEGE 4561. Solids and Hazardous Wastes. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course will serve as an introduction to the topics of solid and hazardous waste management. Classes will incorporate information about prevention, treatment options, and the regulations surrounding solid and hazardous waste. They will also provide an opportunity to observe different methods of waste treatment in action.

CEGE 4562. Environmental Remediation Technologies. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Theory and application of current and emerging technologies used to remediate contaminated soil and groundwater.

CEGE 4563. Pollutant Fate and Transport: Processes and Modeling. (3 cr. ; A-F only; Periodic Fall & Spring)
This course will focus on understanding the processes that dictate chemical fate in surface waters, including air-water transfer, adsorption, and biological and abiotic degradation. Students will evaluate the kinetics of these processes by interpreting experimental data. They will also characterize transport in surface waters by building theoretical and computational models from scratch that incorporate advection, diffusion and dispersion transport processes. Students will develop finite difference solutions to advection-diffusion-reaction equations, using ideal and non-ideal reactor theory, to describe the ultimate fate of pollutants in surface water systems such as rivers, lakes, and estuaries. Fate and transport of organic pollutants (such as pesticides and pharmaceuticals), as well as biochemical oxygen demand and nutrient pollution, will be studied. Prerequisites: CEGE 3101, CEGE 3501, or instructor consent

CEGE 4581. Design for Sustainable Development - India. (TS,GP; 3 cr. ; A-F only; Every Summer)
In this interdisciplinary course in Bangalore (India's fast-growing mega-city and entrepreneurship hub) you will work in teams with local partners to research and design sustainable solutions to development challenges of water, energy, waste, agriculture, transportation, and health. prereq: Open to Junior/Seniors with min. 3.0 GPA.

CEGE 4582. Field Methods in Water Quality: Norway. (3 cr. ; A-F only; Periodic Summer)
This course will explore various aspects of water quality while visiting Norway. The first week will cover the water quality of streams and of stormwater. The second week will cover the water quality of lakes. The third week will cover drinking water and its treatment as well as municipal wastewater and its treatment. This course will be a combination of ?field course? and ?laboratory course? . This course is considered ?hands-on? in that the students will make water quality and other measurements in the field, collect water samples, and perform laboratory analyses on those collected samples. The location of the course will be in/near Trondheim, Norway for weeks 1 and 3 and at the Sletvik field station for week 2. Students will be required to submit three laboratory reports, one for each week of the course. Prereq: (CHEM 1061, CHEM 1065) or equivalent

CEGE 4583. Design for Life: Water in Tanzania. (GP,TS; 3 cr. ; A-F only; Every Spring)
Teams will evaluate community needs and infrastructure to design potable water-handling systems in rural Tanzania, typically off the power grid. Fluid mechanics: complex distribution networks, system losses, pump selection, borehole development; field measurements. Designs must address Tanzanian design guidelines.

CEGE 5094. Directed Research. (; 1-4 cr. ; A-F only; Every Fall, Spring & Summer)
Special studies in the planning, design, or analysis of civil, environmental, and geo- engineering systems. Individual lab research problems, literature studies, reports. Supervised by staff. prereq: instr consent

CEGE 5180. Special Topics. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Periodic Fall & Spring)
Topics vary depending on faculty and student interests. prereq: instr consent

CEGE 5211. Traffic Engineering. (; 3 cr. ; A-F or Audit; Periodic Spring)
Principles of vehicle and driver performance as they apply to the safe and efficient operation of highways. Design and use of traffic control devices. Capacity and level of service. Trip generation and traffic impact analysis. Safety and traffic studies. prereq: CEGE 3201, CEGE 3102 or equivalent, Grad Student

CEGE 5212. Transportation Policy, Planning, and Deployment. (; 3 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Techniques of analysis and planning for transportation services. Demand-supply interactions. Evaluating transportation alternatives. Travel demand forecasting. Integrated model systems. Citizen participation in decision-making. prereq: 3201 or equiv, upper division CSE, or grad student

CEGE 5213. Transit Planning and Management. (3 cr. ; A-F only; Every Fall)
Principles/techniques related to transit systems. Historical perspective, characteristics of travel demand, demand management. Evaluating/benchmarking system performance. Transit-oriented development. Analyzing alternative transit modes. System design/ finance. Case studies, field projects. prereq: Upper Division CE, EnvE, or GeoE student, CE or GeoE grad student, or instructor consent

CEGE 5214. Transportation Systems Analysis. (; 3 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Systems approach, its application to transportation engineering/planning. Prediction of flows and level of service. Production functions, cost optimization, utility theory, demand modeling, transportation network analysis, equilibrium assignment, decision analysis, multidimensional evaluation of transportation projects. prereq: CEGE 3201

CEGE 5341. Wave Methods for Nondestructive Testing. (; 3 cr. ; A-F or Audit; Periodic Fall)
Introduction to contemporary methods for nondestructive characterization of objects of civil infrastructure (e.g., highways, bridges, geotechnical sites). Imaging technologies based on propagation of elastic waves such as ultrasonic/resonant frequency methods, seismic surveys, and acoustic emission monitoring. Lecture prereq: [AEM 2021, AEM 3031] or instr consent

CEGE 5342. Introduction to Inverse Problems. (3 cr. ; A-F only; Every Fall)
Introduction to principles and applications of the inverse problems theory -- the underpinning of model-driven data analytics. The course covers (i) basic ideas, (ii) mathematical foundation, (iii) discretization strategies, (iv) regularization techniques, (v) solution algorithms, and (vi) example problems. All advanced concepts, when recalled, are introduced in an intuitive engineering setting. The discussion, supported by ample numerical examples, focuses on the inversion of linear

``forward'' models. Numerical solutions are implemented in the Matlab environment, and make use of the regtools package that accompanies the textbook (P.C. Hansen, Discrete Inverse Problems -- Insight and Applications, SIAM, 2010). Prereqs: MATH 2243, MATH 2263, CEGE 3101 or equivalent

CEGE 5351. Advanced Engineering Mathematics I. (; 3 cr. ; A-F or Audit; Periodic Fall)
Emphasizes skills relevant for civil, environmental, and geo- engineers. Mathematical principles explained in an engineering setting. Applications from various areas in civil, environmental, and geo-engineering. prereq: [Math 2374 or equiv], upper division CSE student or grad student] or instr consent

CEGE 5411. Applied Structural Mechanics. (; 3 cr. ; A-F or Audit; Every Fall)
Principal Stresses and strain analysis; failure criteria. Introduction to plane elasticity, energymethods, torsion of beams, and bending of unsymmetrical beams. Introduction to structural dynamics and stability. prereq: AEM 3031, Upper div CSE or grad student or instr consent

CEGE 5414. Prestressed Concrete Design. (; 3 cr. ; A-F or Audit; Every Fall)
Design of prestressed concrete structures. Time dependent effects, behavior, flexure, shear, torsion, deflections, continuous systems. prereq: CEGE 4401, upper div CSE or grad student or instr consent

CEGE 5415. Masonry Structures. (; 3 cr. ; A-F or Audit; Periodic Fall)
Masonry materials and their production. Mortars, grouts. Design of unreinforced and reinforced masonry structural systems. Walls, columns, lintels. Codes/specifications, testing. prereq: CEGE 3401, upper div CSE or grad student or instr consent; 4401 recommended

CEGE 5416. Sensors in Infrastructure. (3 cr. ; A-F or Audit; Periodic Fall)
As sensors become part of practice in CEGE fields, an understanding of instrumentation and their application to engineering problems becomes essential. This course will highlight the interdisciplinary nature of using sensors in engineering applications and how previous coursework can be applied. The sensors covered will range from mechanical measurements (e.g. strain, displacement, and acceleration) to environmental measurements (e.g. temperature, oxygen concentration, and wind speed), and non-destructive techniques. In addition to class lectures, instruments and data acquisition will be explored in lab experiments. prereq: CEGE 3402, AEM 3031

CEGE 5417. Structural Engineering Design of Wood Buildings. (3 cr. ; A-F or Audit; Every Fall)
This course provides an in-depth presentation of topics in design of wood structures. The course is intended for advanced undergraduate and entering graduate students who have completed CEGE 4401 or equivalent. The course extends basic concepts of member design, which are covered in CEGE 4401, to wood members and simple wood structures. Knowledge of basic concrete and steel design, construction materials and structural analysis is presumed. Topics covered in the course include: wood properties and grading; design criteria using sawn wood, glue-laminated wood, and plywood; design of beams, columns, trusses, shear diaphragms and floors; connections for wood structures; and building codes and test methods. Prereqs: CEGE 4401 or equivalent

CEGE 5511. Urban Hydrology and Water Quality. (4 cr. ; A-F or Audit; Every Fall)
Urban hydrology for small watersheds and the management of storm water quality and quantity. prereq: CEGE 4501or BBE 5513, upper division CSE or grad student or instructor consent

CEGE 5512. Stochastic Ecohydrology. (3 cr. ; A-F or Audit; Every Fall)
This course will provide the theoretical and quantitative basis for understanding the interactions between the water cycle, vegetation, soil biogeochemistry, and the atmosphere. A main focus of the course will be on modeling the?water and carbon dynamics across the soil-plant-atmosphere system. We will provide probabilistic descriptions of this system at the daily, seasonal, and interannual timescales by incorporating various sources of?randomness and non-stationarity within the environment, particularly those from rainfall. These concepts and tools will be discussed in the context of?sustainable management of water resources and terrestrial ecosystems, especially in view of the changes in the hydrological regime from climate change and societal pressures. prereq: MATH 2373, MATH 2374

CEGE 5513. Energy Conversion from Wind, Hydro and Solar Resources. (3 cr. ; A-F only; Periodic Fall)
During this class the physical principles of energy conversion from alternative resources as wind, hydro and solar will be presented and discussed, with an emphasis on fluid mechanics and geophysical flows (atmospheric boundary layer, rivers, tidal flows). We will start with the resource assessment devoted to quantify the available energy in the environment (wind, rivers, and sun). Each energy resource module will include basic economic principles and assumption enabling the quantification of the efficiency and the costs of energy transformation, as well as an estimate of environmental effects (when possible). We will focus on the details on wind, streams, wave and solar power using conservation equations and basic principles of thermodynamics and fluid mechanics. prereq: CEGE 3502 or equivalent

CEGE 5514. Granular Physics with Environmental and Engineering Applications. (4 cr. ; A-F or Audit; Periodic Fall)
This class concerns ways in which relatively straightforward particle-scale phenomenology is directly related to larger-scale behaviors of concern to environmental and engineering processes. These larger scale behaviors include pattern formation driven by cooperative sorting and advection dynamics. They also include quasi-static and dynamic non-linear responses to stresses and other forcing. Applications we discuss include particle transport in rivers, wetlands reclamation, pavement compaction, and industrial mixing. As many large-scale and small-scale phenemonelogy can be counter-intuitive without experience, the in-class work is supplemented by two sets of hand-on activities. (1) students will explore these phenomenology in physical laboratories and (2) students will explore details unattainable in the physical laboratory by modifying existing computational simulations. (e.g., behavior in zero gravity, chaotic particle pathways, small-scale structures in colloidal suspensions). Minimal prior programming experience is expected. Programming assignments will be designed to be flexible for students of all levels of such experience. Prereqs: Graduate student in CSE or permission of instructor and/or CEGE 3502, MATH 2373, MATH 2374

CEGE 5541. Environmental Water Chemistry. (; 3 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Introduction to water chemistry. Physical chemical principles, geochemical processes controlling chemical composition of waters, behavior of contaminants that affect the suitability of water for beneficial uses. prereq: CEGE 3501, Chem 1061, Chem 1062 or Chem 1071H/1072H, upper division CSE or grad student or instructor consent

CEGE 5542. Experimental Methods in Environmental Engineering. (; 3 cr. ; A-F or Audit; Periodic Spring)
Tools necessary to conduct research in environmental engineering and chemistry. Theory of operation of analytical equipment. Sampling and data handling methods, statistical analyses, experimental design, laboratory safety. Lecture, laboratory. prereq: CEGE 3501, (CEGE 5541 recommended) Chem 1022, upper division CSE or grad student or instructor consent

CEGE 5543. Introductory Environmental Fluid Mechanics. (; 4 cr. ; A-F or Audit; Fall Odd Year)
Environmental fluid mechanics is the study of the interaction of fluid flows that occur in aquatic ecosystems with the growth and behavior of living organisms. prereq: CEGE 3502 or AEM 4201 or ChEn 3005, upper division CSE or grad students or instructor consent

CEGE 5551. Environmental Microbiology. (; 3 cr. ; A-F or Audit; Every Fall)
Role of microorganisms in environmental bioremediation, pollution control, water/wastewater treatment, biogeochemistry, and human health. prereq: Upper div or grad student or instructor consent

CEGE 5552. Environmental Microbiology Laboratory. (; 1 cr. ; A-F only; Periodic Fall)
Basic microbiological techniques: isolation, identification/enumeration of bacteria, BOD, biodegradable kinetics, disinfection. Lab.

prereq: CEGE 5551 or concurrent registration is required (or allowed) in CEGE 5551

CEGE 5570. Design for Sustainable Development - India. (; 3-9 cr. ; A-F only; Every Summer)
In this interdisciplinary course in Bangalore (India's fast-growing mega-city and entrepreneurship hub) you will work in teams with local partners to research and design sustainable solutions to development challenges of water, energy, waste, agriculture, transportation, and health. Prereqs: Open to graduate students from all majors

Classical and Near Eastern Std (CNES)

CNES 1002. World of Greece. (HIS; 3 cr. ; Student Option; Every Fall & Spring)
Ancient Greek civilization, from second millenium BCE to Roman period. Art/ archaeology, philosophy, science, literature, social/political institutions. Focuses on connections with contemporary cultures corresponding to Ancient Near East.

CNES 1003. World of Rome. (HIS; 3 cr. ; Student Option; Every Spring)
Roman civilization, from Etruscan origins to late antiquity. Cultural diversity of Mediterranean civilization. Ways of life, social, and political institutions as evidenced by literature, art, architecture, history, and material culture.

CNES 1042. Greek and Roman Mythology. (AH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to stories/study of Greek/Roman mythology.

CNES 1042H. Honors Course: Greek and Roman Mythology. (AH; 4 cr. ; A-F only; Every Fall & Spring)
Introduction to stories/study of Greek/Roman mythology.

CNES 1082. Jesus in History. (HIS; 3 cr. ; Student Option; Every Spring)
Who was Jesus? While there has been some basic consistency in the depictions of Jesus throughout history, there has also been lots of variety. We will explore a whole host of portraits of Jesus at different points in history to demonstrate not only the varying ways that Jesus has been thought of but also to understand the relationship between these portraits and the historical and cultural contexts in which they were created. We will look at the gospels of the New Testament and some from outside the New Testament. We will look at ancient and medieval art. And we will look at modern film. Although we might not get to the bottom of who Jesus was, we might understand more fully how communities throughout history have thought about him. Intended as a course of interest to undergraduates in all colleges of the TC campus. Students of any, all, or no religious background are welcome.

CNES 1201. Bible:Context & Interpretation. (LITR; 3 cr. ; Student Option; Every Fall)
Introduction to the modern academic study of the Old Testament/Hebrew Bible in the historical context of literature from ancient Mesopotamia. Read Babylonian Epic of Creation, Epic of Gilgamesh, Hammurabi, Genesis, Exodus, Psalms. Stories of creation, law, epic conflict, and conquest. prereq: Knowledge of Hebrew not required

CNES 1913. Homer's Odyssey and Politics. (CIV; 3 cr. ; A-F only; Periodic Fall)
Homer's Odyssey is the story of a man who returns from war to find a world much different from the one he left ten years earlier - and one that seems to have no place for him. On his way home, he lies to some, robs and murders others and, arguably through his own negligence, loses all his men. Once back on his native island of Ithaca, he re-establishes his authority as local strong-man through a mass killing of rivals. He is nonetheless emphatically a "hero" and the moral and political center of the story: what Odysseus does is (in the storyteller's eyes, and those of most readers ever since) right and just. This seminar will use a close reading of the Odyssey, a study of Season One of the Netflix series House of Cards and of selections from Robert Caro's biography of Lyndon Johnson, and extensive discussion of contemporary political and social events, to ask what sort of political and social world Homer's poem imagines; how it formulates and discusses power and justice; how it encourages its audience to accept judgments about human behavior and "what is right" that may, upon reflection, seem horrifying; and what we are to make of this today.

CNES 3016W. Biblical Law and Jewish Ethics. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course.

CNES 3016W. Biblical Law and Jewish Ethics. (WI; 3 cr. ; Student Option;)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course.

CNES 3061. "Bread and Circuses:" Spectacles and Mass Culture in Antiquity. (CIV,HIS; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Development of large-scale public entertainments in ancient Mediterranean world, from athletic contests of Olympia and dramatic festivals of Athens to chariot races and gladiatorial games of Roman Empire. Wider significance of these spectacles in their impact on political, social, and economic life of the societies that supported them.

CNES 3071. Greek and Hellenistic Religions. (HIS; 3 cr. ; Student Option; Fall Even Year)

Greek religion from the Bronze Age to Hellenistic times. Sources include literature, art, and archaeology. Homer and Olympian deities, ritual performance, prayer/sacrifice, temple architecture, death and the afterlife, mystery cults, philosophical religion. Near Eastern salvation religions.

CNES 3072. The Birth of Christianity. (AH; 3 cr. ; Student Option; Periodic Fall & Spring)
Early Jesus movement in cultural/historical setting. Origins in Judaism. Traditions about Jesus. Apostle Paul, controversies/interpreters. Authority, religious practice, structure. Emergence of canon. Contemporary methods of New Testament study. Biblical writings as history/narrative. CNES 3072/CNES 5072/ RELS 3072/RELS 5072 meet together.

CNES 3074. Exploring the Quran: An intellectual odyssey with Islam's holy scripture. (AH; 3 cr. ; A-F or Audit; Every Spring)
This course explores the contents of the Quran and probes its place in the history of human civilization. Students will learn about, and critically reflect on, the following subjects: 1) the Quran's core ideas, stories, laws, parables, and arguments, 2) the historical context in which the Quran was first promulgated and codified, 3) the relationship between the Quran and the preceding literary traditions of the ancient world, in particular, the Bible and post-biblical Jewish and Christian writings, 4) Muslim utilization of the Quran towards intellectual, social, religious, cultural, and political ends, and 5) the pre-modern and modern scholarly traditions of interpreting the Quran.

CNES 3076. Apostle Paul: Life, Letters, and Legacy. (; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
How/what can we know about Paul. What his message was. What he was fighting. How he was later understood by friends/foes.

CNES 3081W. Classical Epic in Translation. (LITR,WI; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Homer's Iliad and Odyssey, Virgil's Aeneid. Cultural context of epic. Development of the hero. Epic style. Poetics of epic.

CNES 3082W. Greek Tragedy in Translation. (LITR,WI; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Origins of tragedy. Ancient theatres. Selected plays of Aeschylus, Sophocles, Euripides.

CNES 3092. Jesus in History. (HIS; 3 cr. ; Student Option; Every Spring)
Who was Jesus? While there has been some basic consistency in the depictions of Jesus throughout history, there has also been lots of variety. We will explore a whole host of portraits of Jesus at different points in history to demonstrate not only the varying ways that Jesus has been thought of but also to understand the relationship between these portraits and the historical and cultural contexts in which they were created. We will look at the gospels of the New Testament and some from outside the New Testament. We will look at ancient and medieval art. And we will look at modern film. Although we might not get to the bottom of who Jesus was, we might understand more fully how communities throughout history have thought about him. Intended as a course of interest to undergraduates in all colleges of the TC campus. Students of any, all, or no religious background are welcome.

CNES 3103. Ancient Greece: Alexander and the East. (HIS; 3 cr. ; Student Option; Spring Even Year)
Achievements of Alexander the Great, their effect on Greek-speaking world. Greek colonization of Egypt. Hellenistic art, literature, philosophy.

CNES 3106. Ancient Rome: The Age of Nero. (; 3 cr. ; Student Option; Periodic Fall)
The Roman Empire. "Silver Age" of Latin literature, rise of Christianity. Art/architecture.

CNES 3115. Midrash: Reading and Retelling the Hebrew Bible. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How did the Jews of the first seven centuries of the common era read and understand the Hebrew Bible? What were the problems they faced -- interpretive, historical, theological -- in trying to apply their holy scriptures? This course explores key issues that led to the development of a new form of Judaism in late antiquity, rabbinic Judaism, and its methods of scriptural interpretation. The course?s study will focus on the forms and practices of rabbinic scriptural interpretation (midrash) as it developed in Roman Palestine and Sasanian Babylonia, focusing on key narrative and legal passages in the Five Books of Moses (Torah). A main focus of the course will be on the ways the rabbis adapted the Hebrew Bible to express their own core concerns.

CNES 3121. Gender and Body in Early Christianity. (AH; 3 cr. ; Student Option; Fall Odd Year)
Ancient Christians, like any other social group in the ancient world, represented themselves through images, stories, and discourses using the cultural tools available to them in their own contexts. In this course, we will explore two key texts of early Christianity (1 Corinthians and the Gospel of Mark) with special attention to how representations of the body and gender served to communicate the nature of what it meant to be Christian for these authors. The study of ancient material offers a space to acquire the skills of critical analysis of body and gender dynamics so that we can better understand the roles that the body and gender play in shaping our self-identity, social interaction, and societal structures.

CNES 3152. Art and Archaeology of Ancient Greece. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
This course will provide an introduction to the history of Greek art, architecture and archaeology from the formation of the Greek city states in the ninth century BCE, through the expansion of Greek culture across the Mediterranean and Asia in the Hellenistic period, to the coming of Rome in the first century BCE. While this survey concentrates on the main developments of Greek art, an important sub-theme of this course this is the changes Classical visual culture underwent as it served non-Greek peoples, including the role it played for Alexander and his successors in forging multiethnic, globally minded empires in Western, Central and South Asia. No background in the time period or discipline is expected and therefore this class will also serve as an introduction to interdisciplinary study of art history and the classical world. A number of art historical methodologies will be introduced in order to not only give students a useful background in art history but to give them the tools to think as art historians and incorporate related visual and textual evidence meaningfully into their writing.

CNES 3162. Roman Art and Archaeology. (HIS; 3 cr. ; Student Option; Fall Odd Year)
Introduction to art and material culture of Roman world: origin, change, continuity. Progress/decay in later empire, its legacy to modern world.

CNES 3182. Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia. (AH,GP; 3 cr. ; Student Option; Every Fall & Spring)
This course will provide students with foundational knowledge in the art, architecture, and archaeology of Egypt, East Africa, Asia Minor, Mesopotamia, Iran and Central Asia from the Neolithic through Late Antiquity (ca. 7,000 B.C.E. - 650 C.E.). Students will gain an understanding of the relationship between the visual material and the social, intellectual, political, and religious contexts in which it developed and functioned. In this regard, students will also gain an understanding of the evolution of, and exchanges and differences among, the visual cultures of these time periods and regions. It will also expose them to the preconditions for contemporary geopolitics in the region.

CNES 3201. The Bible: Context and Interpretation. (LITR; 3 cr. ; Student Option; Every Fall)
Introduction to the modern academic study of the Old Testament/Hebrew Bible in the historical context of literature from ancient Mesopotamia. Read Babylonian Epic of Creation, Epic of Gilgamesh, Hammurabi, Genesis, Exodus, Psalms. Stories of creation, law, epic conflict, and conquest. prereq: Knowledge of Hebrew not required

CNES 3202. Bible: Prophecy in Ancient Israel. (3 cr. ; Student Option; Every Spring)
Survey of Israelite prophets. Emphasizes Amos, Hosea, Isaiah, Jeremiah, Ezekiel, Second Isaiah. Prophetic contributions to Israelite religion. Personality of prophets. Politics, prophetic reaction. Textual analysis, biblical scholarship. Prophecy viewed cross-culturally. prereq: [RelS 1001] or [CNES 1201 or JWST 1201 or RELS 1201 or CNES 3201 or JWST 3201 or RELS 3201]

CNES 3205. Women, Gender, and the Hebrew Bible. (AH; 3 cr. ; Student Option; Spring Odd Year)
How men, woman, gender, sexuality is portrayed in Hebrew Bible. Social/religious

roles/status of women in ancient Israel. Reading biblical texts from academic point of view.

CNES 3206. Sex, Murder, and Bodily Discharges: Purity and Pollution in the Ancient World. (3 cr. ; Student Option No Audit; Every Spring)
"Dirt is dangerous" wrote Mary Douglas more than 50 years ago in her groundbreaking study, Purity and Danger: An Analysis of Concept of Pollution and Taboo. Her work has been influential in ancient Near Eastern and Mediterranean studies when dealing with issues of sacred/profane, purity/pollution, and ritual sacrifice and purification. Douglas' work provides a framework within which to understand ancients' thinking about these concepts that range from the sacredness of space and of bodies to perceived pollutions caused by bodily leakage or liminal stages of life and death. In this course, we will examine Douglas' theory in light of ancient evidence, with special attention to ancient Israelite literature (the Tanakh or Old Testament) and ancient Jewish literature (the Dead Sea Scrolls), but we will also analyze other ancient Near Eastern and Mediterranean examples of purity and pollution (from epigraphical and documentary evidence).

CNES 3502. Ancient Israel: From Conquest to Exile. (; 3 cr. ; Student Option; Periodic Fall)
Israelite history in context of what is known from Egyptian, Canaanite, Mesopotamian sources.Issues raised by archaeological data related to Israelite conquest of Canaan.

CNES 3504. Apocalypticism, Cosmic Warfare, and the Maccabees: Jewish Strategies of Resistance in Antiquity. (3 cr. ; Student Option; Periodic Spring)
The rise of Hellenistic kingdoms in the ancient Mediterranean and Near East created a variety of responses from local, subjugated peoples, and some of the most documented cases are those of Jewish populations in Koele-Syria/Palestine. The main objective of this course is to analyze Jewish responses to imperial rule and military conflict during the Hellenistic and early Roman periods (c. 300 B.C.E. ? 150 C.E.), but we will also spend time examining the broader picture of how local, ancestral groups fared under foreign rule. Along with discussing pertinent archaeological evidence, we will discuss Jewish literature and documentary material from this period, including, the sectarian documents of the Dead Sea Scrolls, the Book of Judith (a Jewish "novel"), the Books of Daniel and the Maccabees (all of which provide historical information about the Maccabean revolt and rise of the Hasmoneans), and the writings of Josephus (a Jewish writer who witnessed the Roman takeover of Palestine in the first century C.E.). This course will stay within the confines of the ancient evidence and not examine later interpretations when analyzing each historical period; it will begin with Ptolemaic control of the region and conclude with the Bar Kokhba revolt, its aftermath, and the resilience of Jewish populations in northern Palestine. Topics that will be examined in depth are messianism and apocalypticism, the Jerusalem Temple, Jewish ancestral traditions (which include biblical literature), and theoretical models used by scholars to analyze power relationships in antiquity.

CNES 3515. Multiculturalism in Modern Israel: how communities, ideologies, and identities intersect. (GP; 3 cr. ; Student Option; Periodic Spring)
This course focuses on the way various cultural groups in Israel attempt to achieve cultural recognition. Students will learn how various ethnic and religious groups shape their identities through process of acculturation and struggle. Students will learn about several Israeli cultures by reading literature, book chapters and case-studies, and watching movies, all of which center on these debates. Students will examine various case studies centered on these multicultural issues in Israel and will discuss and reflect on the implications of the issues raised by the course material for the international community, the United States, and for their own lives.

CNES 3535. Death and the Afterlife in the Ancient World. (AH; 3 cr. ; Student Option; Fall Odd Year)
Beliefs, attitudes, and behaviors related to death and the afterlife found in the cultures of the ancient Mediterranean and Near East. Literature, funerary art/epitaphs. Archaeological evidence for burial practices and care of dead.

CNES 3601W. Sexuality and Gender in Ancient Greece and Rome. (AH,WI; 3 cr. ; Student Option; Fall Even Year)
Evidence for Ancient Greek and Roman ideas about sexuality and gender roles. The methodologies by which it is analyzed. Norms of writing about ancient culture, gender, and sexuality.

CNES 3617. Pagans, Christians, Barbarians: The World of Late Antiquity. (3 cr. ; A-F or Audit; Fall Odd Year)
Between classical and medieval, pagan and Christian, Roman and barbarian, the late antique world was a dynamic age. This course will focus on the Mediterranean region from the 2nd to the mid-7th century exploring such topics as the conversion of Constantine, the fall of Rome, barbarian invasions, the spread of Christianity, and the rise of Islam.

CNES 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments in conjunction with museum or gallery internships; archaeological field experience; language teaching practicum, etc. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

CNES 3951W. Capstone. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Research project pertaining to ancient world, using documents or primary sources along with secondary sources. Students select project in consultation with faculty member. prereq: course is open to second semester juniors and seniors, major in CNES or RelS], instr consentonsent

CNES 3993. Directed Studies. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

CNES 5016W. Biblical Law and Jewish Ethics. (3 cr. ; Student Option; Periodic Fall & Spring)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course.

CNES 5071. Greek and Hellenistic Religions. (; 3 cr. ; Student Option; Periodic Spring)
Greek religion from Bronze Age to Hellenistic times. Literature, art, archaeology. Homer/ Olympian deities. Ritual performance, prayer, sacrifice. Temple architecture. Death/afterlife.

Mystery cults. Philosophical religion. Near Eastern salvation religions. Meets with 3071.

CNES 5072. The Birth of Christianity. (AH; 3 cr. ; Student Option; Periodic Fall & Spring)
Early Jesus movement in cultural/historical setting. Origins in Judaism. Traditions about Jesus. Apostle Paul, controversies/interpreters. Authority, religious practice, structure. Emergence of canon. Contemporary methods of New Testament study. Biblical writings as history/narrative. CNES 3072/CNES 5072/ RELS 3072/RELS 5072 meet together.

CNES 5115. Midrash: Jewish Biblical Interpretation. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How did the Jews of the first seven centuries of the common era read and understand the Hebrew Bible? What were the problems they faced -- interpretive, historical, theological -- in trying to apply their holy scriptures? This course explores key issues that led to the development of a new form of Judaism in late antiquity, rabbinic Judaism, and its methods of scriptural interpretation. The course's study will focus on the forms and practices of rabbinic scriptural interpretation (midrash) as it developed in Roman Palestine and Sasanian Babylonia, focusing on key narrative and legal passages in the Five Books of Moses (Torah). A main focus of the course will be on the ways the rabbis adapted the Hebrew Bible to express their own core concerns.

CNES 5121. Gender and Body in Early Christianity. (AH; 3 cr. ; Student Option; Fall Odd Year)
Ancient Christians, like any other social group in the ancient world, represented themselves through images, stories, and discourses using the cultural tools available to them in their own contexts. In this course, we will explore two key texts of early Christianity (1 Corinthians and the Gospel of Mark) with special attention to how representations of the body and gender served to communicate the nature of what it meant to be Christian for these authors. The study of ancient material offers a space to acquire the skills of critical analysis of body and gender dynamics so that we can better understand the roles that the body and gender play in shaping our self-identity, social interaction, and societal structures.

CNES 5204. The Dead Sea Scrolls. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to Dead Sea Scrolls and Qumran. Contents of Dead Sea Scrolls, significance for development of Bible. Background of Judaism and Christianity. Archaeological site of Qumran. Open to graduate students across the college; knowledge of classical Hebrew will not be required. The course is open to upper level undergraduate students with permission of the instructor.

CNES 5502. Ancient Israel: From Conquest to Exile. (; 3 cr. ; Student Option; Periodic Fall)
Israelite history in context of what is known from Egyptian, Canaanite, and Mesopotamian sources. Focuses on issues raised by archaeological data related to Israelite conquest of Canaan. prereq: Knowledge of Hebrew not required; 5501 recommended

CNES 5713. Introduction to Ugaritic. (; 3 cr. ; Student Option; Periodic Fall)
Ugaritic alphabetic cuneiform script, morphology, and syntax. Reading of representative samples of Ugaritic literature. Attention to linguistic and cultural issues and links to biblical and other Ancient Near Eastern texts. prereq: Adv Hebrew, previous study of biblical texts or instr consent

CNES 5787. Visual Cultures in Contact: Cross-Cultural Interaction in the Ancient and Early Medieval Worlds. (3 cr. ; Student Option; Fall Even Year)
Evaluate critical perspectives from variety of interdisciplinary conversations. Framework for studying cross-cultural interaction among ancient visual cultures that integrates practical, cognitive, object oriented approaches. Cross-continental movement/selective appropriation of objects/motifs.

CNES 5794. Introduction to Classical and Near Eastern Studies. (; 1 cr. ; S-N or Audit; Every Fall)
Introduction to core research materials and reference materials in the various disciplines which make up classical studies. prereq: grad major or minor or instr consent

CNES 5993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq-instr consent, dept consent, college consent.

CNES 5994. Directed Research. (1-12 cr. ; Student Option; Every Fall & Spring)
Guided individual research. Prereq-instr consent, dept consent, college consent.

CNES 5996. Directed Instruction. (1-12 cr. ; Student Option; Every Fall & Spring)
Guided individual research. Prereq-instr consent, dept consent, college consent.

Clinical Laboratory Science (CLS)

CLS 5090. Special Laboratory Methods. (; 1-2 cr. ; A-F or Audit; Every Fall & Spring)
Assignment on an individual basis to one of a variety of special areas of experience in the clinical lab. prereq: instr consent

CLS 5100. Virology, Mycology, and Parasitology for Medical Technologists. (; 2 cr. ; A-F or Audit; Every Spring)
Lab diagnosis of viral, fungal, and parasitic infections. Lecture. prereq: microbiology course with lab, biochem course

CLS 5120. Seminar: Clinical Laboratory Science. (; 1 cr. [max 3 cr.] ; S-N or Audit; Every Fall & Spring)
Current literature. Presentation/discussion of research. prereq: instr consent

CLS 5121. Journal Presentations. (; 1 cr. [max 2 cr.] ; S-N or Audit; Every Fall & Spring)
Critical analysis, evaluation, discussion of current journal articles in student's specialty area. prereq: 1st yr CLS grad student

CLS 5125. Practicum Teaching. (; 1-2 cr. ; A-F or Audit; Every Fall & Spring)
Supervised teaching experience, develop skills using instructional materials, tests, and measurements. prereq: instr consent

CLS 5129. Elements of Laboratory Administration. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Leadership styles, employee selection and evaluation, communications, motivation, morale, discipline, job descriptions, record keeping, budgets, cost accounting, purchasing, product evaluation, lab safety, labor relations, government regulations. prereq: instr consent

CLS 5130. Practicum in Laboratory Administration. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Supervised experience and assignment of specific problems related to lab service and management in health care institutions. prereq: instr consent

CLS 5140. Techniques for Teaching. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Developing objectives, classroom activities, and evaluation criteria for medical technology education. prereq: instr consent

CLS 5165. Advanced Clinical Immunohematology. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Observation, study, and practice in special problems, advanced techniques, and methodology. prereq: instr consent

CLS 5402. Molecular Diagnostics. (; 1 cr. ; A-F only; Every Fall)
Basic theory/application of molecular diagnostics in clinical lab. Lecture, lab. prereq: instr consent

CLS 5768. Advanced Hematology. (; 5-10 cr. [max 30 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Practical experience collecting bone marrow from patients. Diagnosing hematological diseases by evaluating and interpreting cells from clinical specimens of bone marrow, peripheral blood, and, if applicable, lymph nodes. prereq: instr consent

CLS 5864. Research Seminar. (; 1 cr. [max 10 cr.] ; S-N or Audit; Every Fall & Spring)
Departmental research seminar series. prereq: instr consent

CLS 5865. Departmental Seminar. (; 1 cr. [max 10 cr.] ; S-N or Audit; Every Fall & Spring)
Departmental clinical lab research seminar series. prereq: instr consent

Clinical Physiol, Movement Sci (CPMS)

CPMS 5101. Introduction to Clinical Physiology and Movement Science. (; 3 cr. [max 6 cr.] ; A-F or Audit; Periodic Fall)
Overview of clinical physiology and clinical movement science. For students in such diverse fields as bioengineering, kinesiology, neuroscience, physical therapy, physiology, psychology, public health, occupational therapy.

CPMS 5201. Colloquium in Clinical Physiology and Movement Science. (; 1 cr. [max 4 cr.] ; S-N or Audit; Every Fall & Spring)

Interdisciplinary course meets 1st and 3rd week of the month. Current research areas, scientific methods, and interpretation of results in the areas of clinical movement science and clinical physiology. prereq: Undergrad level in basic anatomy and physiology is highly recommended

Col of Food, Agr & Nat Res Sci (CFAN)

CFAN 1101. Dean's Engaged Leaders Seminar. (DSJ; 3 cr. ; A-F only; Every Fall)
Students explore their role in building inclusive community spaces. Development of leadership skills in academic, social, and public service contexts. Hands-on learning/real-world applications in culturally diverse communities. Field trips, guest speakers, and discussions. prereq: Incoming 1st-yr CFANS students only

CFAN 1102. President's Emerging Scholars Seminar. (; 1 cr. ; Student Option No Audit; Every Fall)
President's Emerging Scholars (PES) is an educational opportunity program that supports high-achieving, historically underserved students in their pursuit of a bachelor's degree at the University of Minnesota Twin Cities. Participants are selected based on holistic review conducted by the Office of Admissions, and PES students demonstrate achievement in a number of ways, including strong academics, extracurricular excellence, and significant community engagement. This seminar is designed to help CFANS PES students in the transition from high school to college. Many PES students are the first in their family to attend college, be Pell Grant recipients, indigenous students, and students of color. In this course, students will explore University resources, its people, and connect students with each other. Students will learn about resources, challenges, opportunities, and their own identity development through self-reflection and engagement assignments, culminating in the creation of a Digital Story they can share with their peers. prereq: CFANS newly admitted PES students

CFAN 2096. Reflecting on Your Professional Experience. (1 cr. ; A-F only; Every Fall)
This course is designed to meet the CFANS Experiential Learning requirement which defines the importance and processes of learning through experience. Students will undertake an experience in an authentic work-place setting related to agriculture, food or natural resource settings as a prerequisite to the course. The prerequisite experience will serve as a foundation for learning professional competencies including reflection, problem solving, managing interpersonal relationships, professional communication, and goal setting. Current theories of career development will be introduced to help students construct meaning from their experiences to inform future goals and strategies. prereq: Secured internship, completion of summer module, instr consent

CFAN 2333. Insects, Microbes, and Plants: Ecology of Pest Management. (TS; 3 cr. ; A-F only; Every Fall)
This course uses fundamental concepts of ecology and evolution to illuminate and solve the challenges in managing insects and microbes in today's global context of food and fiber production. Students will learn relevant aspects of insect and microbial biology to be able to situate concrete management problems in an appropriate ecological and evolutionary conceptual framework. Students will apply these concepts and discuss ecological and management controversies, such as what can we learn from natural areas to better manage food and fiber production systems. Case studies, readings, and discussion topics will emphasize factors influencing responsible management decisions.

CFAN 3002. Transfer Student Seminar. (1 cr. ; A-F only; Every Fall)
This course introduces new transfer students to the College of Food, Agricultural and Natural Resource Sciences (CFANS) and to the UMN. This course will introduce students to opportunities provided to them by both CFANS and the University. It will help connect students to faculty and staff, as well as to other transfer students. By introducing transfer student theories, diversity & equity topics, leadership skills and career information, transfer students will become immersed in the CFANS environment and will be provided with a foundation of knowledge that will help students continue to be successful during their remaining time at the University of Minnesota. The course will be held once a week.

CFAN 3091V. Research Proposals: From Ideas to Strategic Plans. (WI; 3 cr. ; A-F only; Every Fall & Spring)
You have a great research idea, now what? How do you turn your idea into a proposal? It has been said, paraphrasing Edison, that innovation is one percent inspiration, 99 percent perspiration. In this course, we will start with an inspiring idea and sweat our way to develop a research proposal. The students will go through a step-by-step process that starts with choosing and defining a research idea, then proceeding to do literature reviews and to the development of a hypothesis, aims, objectives, and a research strategy. The aim of this course is to provide students with tools to understand the structure of scientific reports and proposals, literature searches, and basic data interpretation. The students will learn about different research approaches and how to achieve consistency in their research projects. We will guide students in how to begin and develop a written research proposal that will satisfy the requirements of their advisors, institution, and funding organizations. prereq: If you have less than 60 credits and are interested in this course, please contact the instructor.

CFAN 3093. Directed Studies in International Agriculture. (; 2-4 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

CFAN 3096. Making the Most of your Professional Experience. (1 cr. ; A-F only; Every Spring)
Enhance quality internship experience. Insight about self, world of work, individual learning styles. Communicate skills/learning. prereq: Secured internship, instr consent

CFAN 3201. Career and Internship Preparation. (1 cr. ; A-F only; Every Fall & Spring)
Self exploration, networking, industry research, job/internship search, resumes, cover letters, interviewing, salary negotiation, goal setting. prereq: Soph or jr or sr or grad student

CFAN 3293. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

CFAN 3301. Grad & Prof School:Success Strategies for Prep,Adm. (1 cr. ; Student Option; Every Fall & Spring)
Intended for junior/seniors of all majors with interests in career exploration/pursuit of either graduate or professional school education. Addresses needs of multicultural students, those from diverse backgrounds, those who may be first generation college students.

CFAN 3334. Parasites and Pestilence. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course is designed to provide you with a basic understanding of protozoan and metazoan parasites, focusing on the biology and epidemiology of parasitic diseases and on the parasite- host association. Special emphasis will be placed on those parasites of major medical/veterinary consequence, because parasites continue to be one of the primary causes of morbidity and mortality throughout the world. It is anticipated that you will obtain an awareness of the importance and complexity of these diseases, and how they impact the majority of the world?s population that is less fortunate than those of us living in developed countries. Parasites are explored in the context of transmission, associated disease, diagnosis and treatment options; and environmental, cultural, and socioeconomic drivers of disease epidemiology. Content

will be presented on the blackboard and via Power Point. Additional information is available through the lecture outline in the course website, and in the text. Occasionally, we will have guest lectures on specific topics. The speakers are UMN faculty members and highly recognized scientists, from whom you will receive state-of-the-art information.

CFAN 3422. Introduction to Sustainable Akumal. (1 cr. ; A-F only; Fall Even Year)
This is the on-campus background prerequisite for CFAN 3522 Sustainable Akumal. We introduce Akumal and the history of coastal development in the Mexican Caribe along with coastal ecology and important biota from the area. We consider the cultural context, from ancient Maya to the recent development of a tourism economy and its effects on local communities. We cover required gear and have a pool snorkel session. prereq: Instructor approval, LAC admission to Sustainable Akumal study abroad course.

CFAN 3500. International Field Studies Seminar. (; 1-3 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Interface of agriculture with various natural resource, environmental, economic, food safety, public policy, ethical issues transcending national borders. Seminars take place in other countries or regions of world, providing global perspective. Active learning, lectures, discussion tutorials, field trips, reports, exams. prereq: instr consent

CFAN 3501. Costa Rica--Sustainable Development. (GP; 3 cr. ; A-F or Audit; Every Spring)
Costa Rica's development strategy. Agriculture, tourism, energy, and urbanization show synergies and tension between economic, social, and environmental impacts. Sustainability and how organizations maximize benefits associated with sustainable development. prereq: instr consent

CFAN 3502. Bahamas--Tropical Marine Biology and Shark Ecology. (; 2 cr. ; A-F or Audit; Every Spring & Summer)
Ecology of sharks and natural history of South Bimini Island. Marine ecosystems. Local flora and fauna. Local culture and development policy on the ecosystems. prereq: instr consent

CFAN 3503. Switzerland--Mountain Agriculture. (GP; 3 cr. ; A-F or Audit; Every Spring & Summer)
Spring-time agriculture in a mountain ecosystem; management of farm enterprises to be productive in the context of Europe; how Switzerland has developed agro-tourism; interact with farmers, researchers, professionals and government officials who share expertise and interest in agricultural issues. prereq: instr consent

CFAN 3504. Vertebrate Research Design and Field Survey Techniques. (GP,ENV; 3 cr. ; A-F or Audit; Every Spring)
Thai culture and conservation challenges. Two-day barge trip learning culture before traveling to Thailand's premier conservation research site. Camera-trapping techniques, prey assessment methods, and radio telemetry approaches to the study of large mammals. prereq: instr consent

CFAN 3505. French Language and Culture. (1 cr. [max 3 cr.] ; A-F or Audit; Every Spring & Summer)
French language/way of life. Heritage of French culture. prereq: instr consent

CFAN 3506. Iceland: Landscapes, Natural Resources, and Environmental Management. (3 cr. ; A-F only; Every Summer)
Landscapes and natural resources shape ways countries view and manage environmental resources. We will study landscapes and natural resources of Iceland, including Thingvellir (= ??ingvellir) National Park, the historical seat of Icelandic Parliament (or Al??ingi). We will learn how the national park and other natural resources are sustainably managed, and their significance as environmental and cultural shrines. Students will compile a journal with daily entries, including photographs or digital images, and participate in field exercise and cultural/ social activities providing insight into Icelandic landscapes and society. prereq: But must be at least end-of-year freshmen in good academic standing with a minimum GPA of 2.5 or instr consent

CFAN 3507. Exploring Ecuador: People, Land, and Water from the Amazon to the Galapagos. (ENV,GP; 3 cr. ; A-F only; Every Spring)
In this course we will explore the abundant flora and fauna and water resources of the majestic mountains, rich valley farmlands, and lush tropical forests. We will also explore sustainability and restoration projects and visit urban Quito, rural villages, Amazon basin, and island hop through the Galapagos. This interdisciplinary course offers students of all disciplines an opportunity to explore water resource management and Indigenous (Quichua) culture ? A great opportunity for scientifically and culturally oriented students to interact with each other and the people of Ecuador.

CFAN 3510. From Rainforest to Reef: Wildlife Medicine and Conservation in Belize. (3 cr. ; A-F only; Every Spring)
Introduction to key topics in wildlife medicine. Students will learn medical issues and approaches, the role of the veterinarian in wildlife conservation, zoo medicine, and wildlife rescue & rehabilitation. This program is held at the Belize Wildlife & Referral Clinica??s (BWRC) teaching facility with BWRCa??s founder and wildlife veterinarian, Dr. Isabelle Paquet-Durand. Labs include distance immobilization, suture, spay & neuter, necropsy, comparative anatomy, radiography, parasitology and blood analysis. Field visits are conducted with Dr. Isabelle to the Belize Zoo and to avian, reptile, primate, and manatee centers. Students are introduced to preventative medicine and common diseases for many of these species. A spay & neuter lab reviews theory and suture practice, this is followed by a spay & neuter clinic organized in the field or at BWRC. Students also have the opportunity to observe, and when possible, assist the BWRC veterinary staff during their daily operations.

CFAN 3512. Sustainable Food Chains. (GP; 3 cr. ; A-F or Audit; Every Spring & Summer)
Concentrated study in agriculture/agribusiness. Horticulture. Viticulture/wine making. Rural tourism. Gastronomy. prereq: instr consent

CFAN 3513. The Natural History of Norway. (ENV,GP; 3 cr. ; A-F only; Spring & Summer Odd Year)
The program will be based in the Nord Tr?ndelag region of central Norway where students will learn about Norway's physical geography, ecology, and management of natural resources, including its flora, fauna, and agricultural systems. Students will also gain an understanding of the region's rich culture, history, and close ties to Minnesota. prereq: instructor consent

CFAN 3514. Machu Picchu: Biodiversity & Climate Change in Peru. (ENV,GP; 3 cr. ; A-F only; Every Summer)
Southeastern Peruvian Andes. Inca civilizations. Biodiversity assessment in headwaters of Amazon. What it means to be World Heritage Site. Experience the magic of the Andes. Watch the sunrise over the mountains surrounding Machu Picchu. Climb steep trails deep in the forest to check cameras capturing Peccaries, Jaguars and Jagarundis. Eat dinner with Macaws. Ask a question about the ecology of the forest ? and answer it. Have a unique experience in South America, and share a story about that experience back at home. Posing your own question about biodiversity, landscapes, specific plants or animals, or culture is an intensely rewarding experience. Learning about the ecology of a subset of the Amazon, framing questions and collecting information to address those questions helps us refine our creative and analytical abilities.

CFAN 3516. Sustainable Food Systems of Italy. (ENV,GP; 3 cr. ; A-F only; Every Spring & Summer)
This course examines the concepts of sustainability in relation to food production and culture in a country and place where food is a fundamental component of the regional and national culture. The course incorporates intercultural development concepts to introduce students to past and present Italian culture through the cultural importance of food systems, the ethics of food consumption and production and the concepts of sustainability.

CFAN 3517. Shires, Shorthorns and Sheep: Exploring Livestock Systems in England. (GP; 3 cr. ; A-F only; Spring & Summer Even Year)
This embedded study abroad course will directly examine the similarities and differences of livestock production practices, regulatory policies, consumer (and export) demands and the ethics of animal agriculture in England and Minnesota while allowing students to explore the rich history and culture of England.

CFAN 3518. Environmental Issues in New Zealand. (GP; 3 cr. ; A-F only; Every Spring)

This Global Seminar, Environmental Issues in New Zealand, is open to any undergraduate or graduate students regardless of major. Priority for enrollment is given to University of Minnesota students, but students from other institutions may attend if space is available. There are no course prerequisites and all instruction is in English. New Zealand is a modern country with friendly people and awesome scenery. Our daily news is filled with reports on climate change, water scarcity and pollution, soaring energy costs, and food shortages. Solutions must consider environmental, economic, and social implications of our management strategies. Frequently there are trade-offs between benefits and costs. University students as future leaders of business, government, and social programs should understand how to analyze environmental issues. What are the issues? Who is affected? What alternatives exist to solve them? What are the environmental, economic, and social trade-offs between these alternatives? What are reliable sources of information? How can each of us contribute to solutions? New Zealand has undergone significant changes in its plant and animal composition following the invasion of humans and the exotic species they introduced. Alarmed by these changes, New Zealanders recently have made significant strides in recognizing environmental issues and seeking sustainable solutions. They offer valuable lessons for U.S. students to bring home and apply to our own environmental issues.

CFAN 3519. Bali: Water and Culture from Rainforests to Reefs. (ENV,GP; 3 cr. ; Student Option No Audit; Every Spring)
Travel to Bali, Indonesia as part of a Global Seminarto explore how culture and beliefs influence our relationship with water and the environment. Through field and cultural excursions and site visits, lectures, and personal observation and study, students will cultivate an awareness of their relationship to the natural world as influenced by their own culture and belief system.

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CFAN 3520. Germany: Leading the Renewables Revolution. (GP,ENV; 3 cr. ; A-F or Audit; Every Fall)
A bilateral agreement between Minnesota and Germany to pursue best practices in clean energy offers a unique opportunity for students to participate in an international delegation. Students meet government, business, academia and civil society leaders and see Germany's integrated approach to energy transition up close. Embedded fall semester with winter study abroad travel to Germany. CFAN 5520 is the graduate offering of this course. prereq: instructor consent

CFAN 3521. Borneo Global Seminar: Tropical Wildlife Conservation & Climate Change. (ENV,GP; 3 cr. ; A-F only; Summer Odd Year)
This seminar explores tropical conservation by focusing on three main themes in Borneo: climate change, rehabilitation and release of charismatic rare and endangered species, and remote camera surveys for environmental education. Each theme is supported with in-country lectures, exploration activities, and a student product. We explore and learn about marine, montane, and tropical forest ecosystems. Threats to ecosystem health in Borneo are multi-faceted. Habitat loss and fragmentation, due to logging a few decades ago and primarily now oil-palm agriculture, mean that wildlife populations are smaller and increasingly isolated. This class engages students in global issues of climate change and habitat loss, helping them explore and analyze their observations critically. It also brings students face-to-face with rehabilitation and reintroduction of the species that suffer most as forests are felled for logging followed by oil palm agriculture. Species we investigate most closely are orangutans and sun bears. We explore riparian habitat, discuss issues of fragmentation, and pressures on protected areas at the Danau Girang Field Centre (DGFC). DGFC is located in high-quality riparian habitat in the Kinabatangan Reserve, in patches of forest nestled in a matrix of oil-palm agriculture. This area is host to a truly incredible suite of wild species. The Kinabatangan River is home to clouded leopards, sun bears, orangutans, otters, proboscis monkeys, and crocodiles. At the field station, wild orangutans forage in the canopy overhead. If you follow the noise of rustling leaves, you will likely observe troops of long-tailed macaques moving in the canopy and hornbills feeding on forest fruits. Students learn wildlife monitoring techniques and design their own environmental education lesson. Students also connect issues of climate change and conservation in a range of ecosystems in Sabah, Borneo, and design enrichment projects for captive sun bears and orangutans.

CFAN 3522. Sustainable Akumal: Turtles, tourists, cenotes and coral reefs. (ENV,GP; 3 cr. ; A-F only; Fall Even, Spring Odd Year)
This Global Campus Partner seminar addresses coastal and marine ecology as affected by tourism and development and how these affect local communities. We will explore these issues in Akumal (Mayan: place of the turtle), Mexico on the Riviera Maya. Tourism and associated development have expanded exponentially in the past decade with subsequent effects on waste management and water quality in the local cenotes, groundwater, lagoons and reefs. In addition to the water quality effects, increased use by tourist is also directly affecting sea grass, turtles and coral reefs. We will explore the ecology of these systems, methods to assess their status and impacts, and strategies to reduce or mitigate the effects in a sustainable manner that involves local populations. Prereq: CFAN 3422

CFAN 3523. Greek Agriculture and Gastronomy: A Taste of the Mediterranean. (GP; 3 cr. ; A-F only; Every Spring & Summer)
This embedded course will be based in Thessaloniki, Greece and will examine Greek agriculture, food, and culture. Students will have hands-on experiences learning about the impact that Greek cuisine has on the rural development of the country, and how Greeks work to conserve many of their cultural traditions.

CFAN 4801H. Honors Thesis. (; 3 cr. ; A-F only; Every Fall & Spring)
Students work closely with a faculty member to develop and complete the honors thesis. Available to all CFANS majors. Prereq-Candidate for graduation with honors through CFANS in any major, college consent.

CFAN 5480. Topics in CFANS. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Lectures by visiting scholar(s) or regular faculty member. Topics specified in Class Schedule. prereq: Grad student

CFAN 5500. International Field Studies Seminar. (; 1-3 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Interface of agriculture with natural resource, environmental, economic, food safety, public policy, ethical issues transcending national borders. Seminars take place in various countries/regions. Active learning, lectures, discussion tutorials, field trips, reports, exams. prereq: instr consent

CFAN 5501. Costa Rica--Sustainable Development. (; 3 cr. ; A-F only; Every Spring)
Costa Rica's development strategy. Agriculture, tourism, energy, urbanization. Synergies/tension between economic, social, environmental impacts. How organizations maximize benefits associated with sustainable development. prereq: grad student, instr consent

CFAN 5518. Environmental Issues in New Zealand. (GP; 3 cr. ; A-F only; Every Spring)
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Coll of Science, Engineering (CSE)

CSE 1001. First Year Experience. (; 1 cr. ; A-F only; Every Fall)
Resources and strategies for college success. Majors and career opportunities offered in the physical sciences, mathematics, and engineering. Personal responsibility, academic integrity, and level of academic rigor required for success. Personal action plan for achievement in CSE. prereq: CSE, fr

CSE 1002. CSE First Year Global Seminar - Taking CSE 1001 International!. (1-2 cr. ; A-F only; Every Spring & Summer)
The program will take place over 10 days in designated locations abroad. Daily activities will include site visits to relevant commercial and academic institutions. Significant cultural elements and activities will be a key component of this program as well. The specifics of each seminar will depend on the location and travel dates. Freshman global seminars are a chance for students to learn abroad during their first year in the College of Science and Engineering. These freshman Global Seminars are popular short-term study abroad programs customized for CSE students, tailored for their first year of study in CSE. Students get to know a faculty member and other students, earn one credit, and learn about a technical topic. Preparation begins prior to departure. Registration and billing during spring semester. Led by a faculty expert and a CSE professional staff member. There are no language prerequisites. prereq: CSE 1001 First Year Experience

CSE 1012. Project-based Inquiry. (2 cr. ; A-F only; Every Spring)
This experiential learning class introduces CSE freshmen to new skills that will be helpful in their coursework, extracurricular activities and internships, and develops those skills through a team project. Different sections of the course are devoted to different skill-based themes (e.g., 3D printing; 3D Printing and Microcontrollers). All sections follow the same format. In the first several weeks of the semester, students learn new skills by completing exercises and activities. Then, team projects begin. Student teams are given project constraints or specifications (i.e., size limitations, features) and then follow a series of design steps to create their projects. First, they define a problem or goal for their projects based on their interests and the skills they are learning. Next, they brainstorm possible ways to solve the problem or meet the goal and select one to pursue. Then, they create a prototype and test it. Based on the results, they redesign and refine their project as time allows, ultimately creating a final project. At key points along this sequence, the teams document their work with project memos, a presentation about their prototype, and a final project report.

CSE 1511. PLTW: Introduction to Engineering Design. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Students are introduced to the engineering design process, applying math, science, and engineering standards to identify and design solutions to a variety of real problems. They work both individually and in collaborative teams to develop and document design solutions using engineering notebooks and 3D modeling software.

CSE 1512. PLTW: Principles of Engineering. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Through problems that engage and challenge, students explore a broad range of engineering topics, including mechanisms, the strength of materials and structures, automation, and motion. Students develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation.

CSE 1513. PLTW: Digital Electronics. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Open doors to understanding electronics and foundations in circuit design. Digital electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras, high definition televisions, etc. Students learn the digital circuit design process to create circuits and present solutions that can improve people's lives.

CSE 1514. PLTW: Computer Integrated Manufacturing. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Manufacturing transforms ideas into products. This course provides an opportunity for students to develop a better understanding of this innovative and exciting industry. Students learn about manufacturing processes, product design, robotics, and automation. Students develop their knowledge and skills of Computer Aided Design and Manufacturing to produce products using a Computer Numerical Controlled (CNC) mill. Students apply the knowledge and skills gained in this course as they collaborate to design, build, and program factory system models.

CSE 1515. PLTW: Overview of Civil Engineering and Architecture. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Students learn the fundamentals of building design, site design, and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3D architectural design software.

CSE 1516. PLTW: Computer Science Principles. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Students create apps for mobile devices, automate tasks in a variety of languages, find patterns in data, and interpret simulations. Students collaborate to create and present solutions that can improve people?s lives.

CSE 4096. Field Study; Internship, Industrial Assignment. (1 cr. [max 2 cr.] ; S-N only; Every Fall, Spring & Summer)
Provide students participating in academic-related experience, limiting ability to enroll for full-time status during semester, ability to maintain active student status with University.

CSE 5101. Introduction to Engineering Design for Teachers. (3 cr. ; Student Option No Audit; Every Summer)
History, career opportunities, portfolios, visualization, geometry, modeling, construction, analysis, documentation. Part of Project Lead the Way curriculum. Prereq-college consent.

CSE 5102. Principles of Engineering for Teachers. (3 cr. ; Student Option No Audit; Every Summer)
Communication/documentation, design process, engineering systems, strength of materials, testing, reliability, statics/dynamics. Part of Project Lead the Way curriculum. Prereq-college consent.

CSE 5104. Civil Engineering and Architecture. (3 cr. ; Student Option No Audit; Every Summer)
Overview of civil engineering and architecture, their interrelationship/dependence on each other. Students use software to solve real world problems. Project/site planning. Project documentation/presentation. Part of Project Lead the Way. Prereq-college consent.

College of Liberal Arts (CLA)

CLA 1001. CLA First-Year Experience I. (; 1 cr. ; S-N only; Every Fall)

This course is designed to help students transition into the University of Minnesota and the College of Liberal Arts. The course will include various opportunities to engage, create, and reflect on your own unique experiences and identify effective strategies, skills, and tools to be successful in your first year and beyond.

CLA 1002. CLA First-Year Experience II. (; 1 cr. ; S-N only; Every Spring)
This course is designed to help each student achieve their individual goals by promoting proactive educational and career planning, introducing CLA?s Core Career Competencies, and encouraging students to reflect on how they are developing them in their first year.

CLA 1005. Introduction to Liberal Arts Learning. (2 cr. ; A-F only; Every Fall)
This course is about you: your identity, your dreams, your goals, your values, your strengths, and your first year university experience. This course is also about ?you? in the plural sense. More specifically, through a shared experience that includes dialogue, readings, videos, and a group project. We will explore how diverse US college students understand their college education, what they want from it, and how they negotiate and give meaning to their university experience. This course is designed to help you navigate the challenges of college, the workplace, and society and propel you towards personal excellence, fulfillment, and wellness. As active partners in the quest for educational and personal success, our teaching team will work with you to develop the knowledge and understanding of self, society, and the university required to successfully navigate college life in an increasingly diverse and interconnected world. prereq: CLA Presidents Emerging Scholars, freshman

CLA 1007. CLA First-Year Experience: Independent Study. (1 cr. [max 2 cr.] ; S-N only; Every Fall, Spring & Summer)
Independent study version of CLA 1001/1002. By permission number only.

CLA 1052. Dean's First-Year Research and Creative Scholars Program. (; 1-2 cr. ; Student Option; Every Spring)
Freshman research or creative opportunity with faculty. Prereq-Only available to CLA freshmen receiving a CLA Research Opportunity.

CLA 1053. Continuation of Dean's First-Year Research and Creative Scholars Program. (2-3 cr. [max 6 cr.] ; Student Option No Audit; Every Fall)
Continued work with matched faculty as part of their First Year Research or Creative opportunity with faculty. Prereq-Only available to CLA freshmen or transfer students who have completed CLA 1052.

CLA 1200. Topics. (; 1-5 cr. [max 20 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

CLA 1201. BA MD Medical Education Seminar I. (1 cr. ; Student Option No Audit; Every Fall)
This is the first course in a series of 4 required courses for students enrolled in the BA/MD Joint Admissions Scholars Program. Students in the course will have the opportunity to be mentored and coached by Medical School faculty as they prepare for medical education.

CLA 1202. BA MD Medical Education Seminar II. (1 cr. ; Student Option No Audit; Every Spring)
This is the second course in a series of 4 required courses for students enrolled in the BA/MD Joint Admissions Scholars Program. Students in the course will have the opportunity to be mentored and coached by Medical School faculty as they prepare for medical education.

CLA 1914. Humor and Laughter in Interaction. (; 3 cr. ; A-F only; Periodic Fall)
In this course we will investigate humor and laughter in their ?natural habitat,? everyday talk, and analyze how language shapes and is shaped by social interaction. We will discuss basic features of humor including jokes, anecdotes, word play, and irony. Then we will study how we laugh and why we laugh. We will investigate how humor and laughter are used in spontaneous conversation for self- disclosure, irony, multimodal and intertextual humor, masculinity, demarcation, etc. We will examine conversations among friends and family, co-workers, and bilingual school children and cross-cultural couples. We will primarily focus on English conversations but the readings will relate to a variety of languages, including English, ELF (English as a Lingua Franca), Japanese, Spanish, and German.

CLA 1915. Language, Food, and Identity. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Language and food are crucial for defining who we are. We learn language and the tastes (textures, smells, visual features, and sounds) that we associate with food early in our lives, and both form an important part of our identities. In this course, we will address the following questions: 1) How are language, food, and identity related? 2) How does language structure recipes and menus, and how is it used in food names? 3) How is language used online and in the media, e.g., in food blogs and TV cooking shows? 4) How do we assess and identify food? 5) How does language relate to gender in the context of food? 6) How does language and food socialization influence children?s identity? 7) What metaphors do we have for food? 8) How does food humor reflect our identities? We will explore the relation between language, food, and identity in spontaneous conversations among people eating a variety of foods. The class will be most rewarding for students who like to cook and/or eat, talk about food, and educate their palate.

CLA 2005. Introduction to Liberal Education and Responsible Citizenship. (; 2 cr. ; A-F only; Every Spring)
This course will focus on the themes of identity, community and civic engagement. We will focus on developing dimensions of personal and social responsibility to include contributing to a larger community and taking seriously the perspectives of others. This course will take on big questions such as: What does it mean to contribute to a larger community? What does a college education prepare you for? How can critical thinking skills be applied to real life case studies? How do you navigate your identity in the workplace, academic, and service-learning settings? What is responsible citizenships and engage in diverse and competing perspectives? In this course, we will turn to real-world stories and voices to explore our potential for greater understanding, compassion, empathy, resilience, democratic imagination, and critical citizenship prereq: [CLA 1005], CLA Presidents Emerging Scholars, freshman

CLA 2200. Topics. (; 1-5 cr. ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

CLA 2201. BA/MD Medical Education Seminar III. (1 cr. ; Student Option No Audit; Every Fall)
Students will identify important character qualities that enhance a person?s capacity to be an effective physician and will solidify personal values associated with a passion for medicine. Students will further develop their communication skills by facilitating a seminar where they reflect upon their structured clinical or research experience.

CLA 2202. BA/MD Medical Education Seminar IV. (1 cr. ; Student Option No Audit; Every Spring)
Students will explore healthcare policy and the effect the policies have on health disparities and healthcare in Minnesota. Students will reflect upon their experiential development, enhance skills to facilitate lifelong personal introspection and identify strengths and challenges of their interpersonal attributes.

CLA 3001. CLA Transfer Semester Experience. (; 1 cr. ; S-N only; Every Fall & Spring)
This course will support first-semester College of Liberal Arts transfer students in making a smooth transition and connect them with campus resources. Although online, some in-person assignments are required (available at various times) to help students benefit from resources, meet people, and develop a sense of belonging on campus. Time will also be dedicated to major exploration and career/post-graduation planning, so that students are well-prepared to meet their individual goals. Some weekly lessons will carefully relate to CLA's Career Readiness themes, and involve taking a personal assessment and finalizing a new resume. Prereq: Must be a new CLA transfer student in their first semester on the UMTC campus.

CLA 3002. Career Kickstarter: Finding Internships and Other Career-Related Experiences. (1 cr. ; Student Option No Audit; Every Fall & Spring)
For sophomores and juniors. This course helps you explore and apply for internships or other career-related opportunities for undergraduate students (e.g., undergraduate research, leadership, etc.). You'll have opportunities to begin learning and gaining experience through employer engagement within the class. Assignments include researching internship options, writing cover letters, and learning how to network as a student.

CLA 3101. Career Exploration for Transfer Students. (; 2 cr. ; Student Option; Every Fall & Spring)
For CLA transfer students or students considering transferring to CLA. This course helps you learn about campus career resources and your CLA core career competencies, write cover letters, and connect career fields and CLA majors with careers. Assignments include learning about and using campus career resources, writing cover letters, and exploring career fields common to CLA students.

CLA 3201. Career Planning: Preparing for Your Post-Graduation Plans. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
For juniors and seniors. This course helps you plan and prepare for your post-graduation plans, such as finding a job or applying for graduate school. Assignments include preparing for interviews, conducting informational interviews, and crafting your personal brand for cover letters and/or personal statements.

CLA 3205. Law School Exploration. (; 2 cr. ; Student Option; Periodic Fall & Spring)
This is a course for those interested in law school. It offers an overview of applying to and attending law school, as well as exploration of careers and specialties within the field of law. Discover how your Core Career Competencies and your Liberal Arts Advantage prepare you for and make you competitive in the field of law. Assignments include informational interviews and off-campus site visits that allow you to examine the reality of attending law school and becoming a lawyer.

CLA 3500. Topics. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

CLA 3501. Spanish History on the Camino de Santiago: A Hiking Adventure. (GP; 3 cr. ; A-F only; Periodic Summer)
This seminar will combine the history of Spain, the history of the Camino de Santiago, art history, and architectural history with the practice of travel for transformation. While we will travel together, each of us will have the opportunity to experience something that holds unique and individual meaning. It may be a spiritual awakening, an educational epiphany, or a transformative personal moment. There will be ample time for personal reflection and contemplation as well as group experiences. You will be encouraged to use your time on the camino to discover something that holds special meaning for you whether it is spiritual, a rite of passage, personal transformation or just openness to new experiences. We will all engage in reverent travel which is a practice that spans traditions and religions.

CLA 3890. Internship Reflection: Building on your Summer Internship Experience. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall)
In this 7 week, online fall course, students reflect on their summer internship experience to analyze and identify which components from their internship work, environment, and professional relationships energized them, and which core career competencies they developed. Students will intentionally examine multiple perspectives to crystallize their values, interests, and strengths, and create next steps for their career and life. Through this process, students will practice leveraging their internship experience for upcoming professional opportunities, as well as gain the tools for creating an authentic professional identity, grounded in their liberal arts education, in an evolving job market and world.

CLA 3896. Internship Reflection: Making Meaning of Your Experience. (; 1 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
For any student with an internship. Allows students to examine, reflect on, and construct meaning from their internship experience through self assessment of personal and career needs and goals, examination of what it means to be a "professional" and operate within professional environments, evaluation of performance and accomplishments, and articulation of knowledge and skills via effective resume writing. prereq: dept consent

Commun Engage Scholars Program (CESP)

CESP 3901. Community Engagement Scholars Program Integrative Capstone Seminar. (1 cr. ; A-F only; Every Fall & Spring)
This one-credit seminar is designed to complement the Integrative Community Engagement Project (ICEP) as a capstone experience for you as a Community Engagement Scholar. The seminar will provide tools, guidance, support, and structure to help you successfully complete your ICEP. It will also provide opportunities for you to reflect on how your previous academic and community work have informed your ICEP, and how your experiences will inform and help prepare you for the next, post-graduation phase of your life. The first half of the semester will be focused primarily on project support, and the final half of the semester will be focused on reflection. Throughout the semester we are going to be preparing you to do a digital story as your Integration and Contextualization capstone reflection on your participation in the Community Engagement Scholars Program. During our seminar meetings, we will use a variety of teaching and learning strategies to achieve the course objectives, including: workshop space to discuss projects with your small group of peers, interactive reflection activities, and short readings. A number of our class periods will be spent using a learning method called learning circles. Learning circles are a form of democratic education in which participants share stories about their experiences around a common theme to identify connections and insights about our work. As part of our digital storytelling process we will be doing several activities throughout the semester that will lead to a story circle, a part of the creative process that takes place during digital storytelling workshops. prereq: Departmental Consent based on program requirements completed or plan for completion determined with program staff.

CESP 3993. Directed Study for Community Engagement. (1-4 cr. ; A-F only; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent, dept consent, college consent.

Communication Studies (COMM)

COMM 1101. Introduction to Public Speaking. (CIV; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Public communication processes, elements, and ethics. Criticism of and response to public discourse. Practice in individual speaking designed to encourage civic participation.

COMM 1101H. Honors: Introduction to Public Speaking. (CIV; 3 cr. ; A-F only; Every Fall & Spring)
Public communication processes, elements, and ethics. Criticism of and response to public discourse. Practice in individual speaking designed to encourage civic participation. prereq: Honors

COMM 1313W. Analysis of Argument. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Strategies for analyzing, evaluating, generating arguments. Problems in listening/responding to argument.

COMM 1917. Sounds of Social Justice. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Tom Morello of Rage Against the Machine wrote, ?Music and the arts feed our souls, but a decent wage puts food on the table. Musicians, fans of music, and grassroots political organizations are a potent force to fight for social justice.? This seminar will explore the soundscapes of contemporary activism from musical lyrics and protest chants to meditative silence and sonic weaponry. Together, we will work towards understanding the interplay between sound and social justice, examining the different sonic dimensions of cultural, political, and social rights around the world. We will consider issues of race, immigration, gender and sexuality, labor, and war with an eye (and an ear) towards what protest, progress, and change quite literally sound like. This course will make use of a wide range of media and learning styles, such as listening exercises, class discussions, field trips, and multimodal research projects. Ultimately, students will explore how our sonic realities inform our understanding and response to both cultural and human rights.

COMM 1918. Analysis of the Intersection of Communication and Sport. (; 3 cr. ; A-F only; Periodic Fall)
Sports are something that illustrate both the best and worst aspects of society. On one hand, sports can provide common ground for those who may share few other similarities. On the other hand, sports serve to construct and reinforce the very social and cultural differences they so effectively transcend. Perhaps more than any other popular cultural arena, sports shape, illustrate, and bolster expectations for how people ought to conduct themselves depending on their racial, class, gender, and sexual

identities. Consequently, sporting events, the identity performances these events reinforce, and the way media outlets represent these events and performances can expose some of the most difficult and urgent questions within contemporary cultural theory, popular culture studies, and media studies. Focusing specifically on an American context, this course will combine theoretical and sports-oriented readings from communication scholars to discuss the roles sports play in American culture, their power to influence identity performances, and how sports are represented and consumed?from live events viewed in a stadium to fantasy sports. We will examine how sports, as texts, help us to grapple with the intersections among identity, politics, media, and culture.

COMM 3110. Topics in Communication Studies. (; 3 cr. [max 15 cr.] ; Student Option; Periodic Fall & Summer)
Cases illustrating communication studies, theory, underlying issues.

COMM 3110H. Honors Topics in Communication Studies. (; 3 cr. [max 15 cr.] ; A-F only; Every Fall, Spring & Summer)
Cases illustrating communication studies, theory, underlying issues. prereq: Honors

COMM 3190H. Honors Course: Research Seminar in Communication. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Students conduct original research in rhetoric, communication theory, or media for honors thesis. Theory, methods, research writing. prereq: Honors candidate in comm, instr consent, dept consent

COMM 3201. Introduction to Electronic Media Production. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students work as a team to plan, script, and shoot video productions in a hands-on multi-camera television studio. By creating their own productions and reviewing the productions of others, students learn how media aesthetics shape the presentation of themes and messages.

COMM 3202. Audio Production and Media Literacy. (; 3 cr. ; Student Option; Every Fall)
Experience with sound design/production. Models of media, audience, shared construction of reality. Sound/audio as medium of communication. What about sound is persuasive. How media producers use sound to make things seem realistic. Role sound plays in audience's construction of world. How people use sound in unexpected ways. How mode of delivery affects how content is produced/interpreted. Recording, foley work, looping/ADR, production of radio play. prereq: 3201, able to meet outside of designated course window

COMM 3204. Advanced Electronic Media Production. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Video as communicative medium integrating visual/aural aesthetics. Creation of broadcast-quality production integrating message creation, audience analysis, argument development, and visual/audio scripting. Utilization of media aesthetics to develop/shape production content. prereq: 3201 or instr consent

COMM 3211. Introduction to Media Studies. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Historical development and current issues in electronic media technologies and programming. Effects of governmental, industrial, and public organizations on message content. Problem areas of electronic media.

COMM 3221. Musical Communication. (; 3 cr. ; Student Option; Periodic Fall)
A critical media studies perspective on the production, distribution, consumption, circulation, and regulation of popular music.

COMM 3231. Reality TV: History, Culture, and Economics. (; 3 cr. ; Student Option; Every Spring)
Social, visual, cultural, economic, historical, and ethical dimensions of reality television.

COMM 3263W. Media Literacy: Decoding Media Images and Messages. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Analysis of media images/messages. Principles of literacy. Media content/industries. Media and identity. Media effects. Textbook/packet readings, videos, small groups of peer writing workshops, media analyses.

COMM 3341. Asian American Images. (AH,DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
From 19th-century anti-Chinese political cartoons to Harold and Kumar, visual representations of Asians in the United States have long influenced how Asian Americans are seen and treated. What are some of the ways that photography, graphic arts, and digital culture have pictured Asian Americans as aliens, citizens, immigrants, workers, family and community members, entertainers, and artists? Course topics will relate visual images to particular historical moments, including the early exclusion period and the "yellow peril" stereotype; WWII Japanese American incarceration and the drawings of Min? Okubo, and photo-journalism documenting U.S. military involvement in Southeast Asia and its aftermath. How do photographic and other images work to counter historical amnesia, heal traumatic loss, and document social injustice? Other weeks of the class will explore the ways that individuals, families, and communities use photographs, video, and other visual media to preserve a sense of connection and belonging. We will also look at how contemporary Asian American photographers such as Tseng Kwong Chi, Nikki Lee, and Wing Young Huie experiment with visual images to raise questions of racial and national identity, social inequality, gender, sexuality, and political agency. The course also includes a digital storytelling project that encourages students to create video images and sound reflecting Asian American immigration stories from local communities.

COMM 3351. Asian Americans and Popular Culture. (AH,DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
Over the past few decades, Asian Americans have become increasingly visible both as the subjects and producers of popular culture in the United States. This course will explore how this new recognition of Asian Americans in popular literature, cinema, television, and entertainment is related both to longer histories of Asian immigration and racial exclusion and to post-1960s efforts to forward racial awareness, community activism, and social justice. Our first unit will look at how particular stereotypes such as the yellow peril or the wartime enemy encouraged anti-Asian feeling and violence and legal restrictions on immigration and naturalization. We will then examine how throughout history, Asian immigrants and their descendants used song, dance, theater, writing, and other forms of popular culture to express personal desires and foster collective ties. Our final unit concentrates on contemporary popular culture and its relationship to the changing identities of Asian Americans. How do Asian Americans influence the current essays, films, and videos that are consumed by millions today? How are increasingly pan-ethnic, interracial, multiracial, transnational, and global experiences reflected in popular culture?

COMM 3401. Introduction to Communication Theory. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Social scientific theory in human communication. Logic of scientific communication theories in interpersonal, small group, organizational, intercultural, and mediated communication.

COMM 3402. Introduction to Interpersonal Communication. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Nature and function of communication between individuals in formal and informal relationships. Communicative interactions from theoretical and practical viewpoints.

COMM 3409. Nonverbal Communication. (SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Nonverbal communication in interpersonal communication process. Nonverbal codes (touch, space, smell, eye contact) and their communicative functions (impression management, flirting, persuading, lying) in relational contexts (intimate relationships, friendships, work relationship). Theories, practices.

COMM 3411. Introduction to Small Group Communication. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Cooperative thinking in task-oriented groups. Planning, preparing for, and participating in small groups in private and public contexts.

COMM 3422. Interviewing and Communication. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Application of communication concepts in information interview. Planning, conducting, and evaluating informational, journalistic/elite, helping, persuasive, appraisal, and employment interviews. Class training, field experience.

COMM 3431. Persuasion Theories. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Sociological, psychological, and communication perspectives. Theoretical knowledge applied to persuasion problems. prereq: Soph recommended

COMM 3441. Introduction to Organizational Communication. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Functions of communication in work groups, in organizational hierarchies, and between organizations.

COMM 3451W. Intercultural Communication: Theory and Practice. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Theories of and factors influencing intercultural communication. Development of effective intercultural communication skills. prereq: Planning an intercultural experience

COMM 3452W. Communication and the Intercultural Reentry. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Intercultural experience explored through stories and story telling, participant observation, and social scientific theory. Constructs include identity, learning styles, cultural adaptation, values, ethics. prereq: Return from an intercultural experience

COMM 3601. Introduction to Rhetorical Theory. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Theoretical systems to explain/direct creation of public discourse. Traditional rhetoric to contemporary perspectives. Using theory to explain practice of public discourse.

COMM 3605W. Persuasive Speaking and Speech Writing. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Performance/composition with critical inquiry into rhetoric theories. Writing, thinking, and speaking skills. prereq: 1101, soph

COMM 3614. Advanced Public Policy and Debate. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Instruction in advanced theories and practices of both public and NDT/CEDA policy debate.

COMM 3615. Argumentation. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Argument(s) in relation to logic, dialectics, and rhetorical performance. Structured reasoning, informal conversation, familial arguments, debates in technical professions, communication ethics, and public/social argumentation. prereq: Soph

COMM 3625. Communication Ethics. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Applying concepts/theories from philosophy and social science to ethical issues in interpersonal, group, organizational, intercultural, and media communication.

COMM 3631. Freedom of Speech. (CIV; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Communication theories and principles that underlie the concept of freedom of speech in the United States. A variety of contexts and practices are examined in order to understand how communicative interaction should be described and, when necessary, appropriately regulated.

COMM 3635W. Famous Speeches. (WI; 3 cr. ; A-F only; Every Fall)
Speeches that became famous because of the occasion, issue, or speaker. Students analyze texts, research the issue?s history and the speaker?s biography/opposition, and evaluate the speech's artistry, ethical principles, effects on society, and contribution to history of ideas.

COMM 3645W. How Pictures Persuade. (WI; 3 cr. ; A-F only; Every Fall)
How words/pictures interact in graphic memoirs, political cartoons, and science to create/communicate meaning. How this interaction bears on public advocacy. Reading examples of comprehensive cognitive model of visual communication.

COMM 3666. Greek Intellectual Revolution. (3 cr. ; Student Option; Periodic Spring)
This course is a three-week study abroad experience in Greece with the objective to examine how this ancient culture revolutionized its self-understanding of certain eternal human questions. Students will first acquire a degree of cultural competence in understanding the ancient culture, secondly understand how that revolution shaped our own western cultural foundations, and thirdly to use the ancient answers to provoke a critical assessment our answers to those same human questions.

COMM 3676W. Communicating Terrorism. (GP,WI; 3 cr. ; Student Option; Every Fall)
Terrorism as an ethical and international problem. Different cultures' historical trajectories for terrorism. Contrasts between Algerian, Irish, and Arab terrorism.

COMM 3681W. Rhetorical Fictions and 20th Century Conflicts. (GP,WI,LITR; 4 cr. ; Student Option; Every Fall & Spring)
Analysis of selected 20th-century documentary novels. Nature of artistic truth in relation to historical truth. Cross-cultural comparisons of responses to impact of Anglo-American policies.

COMM 3682W. Communicating War. (AH,WI,CIV; 3 cr. ; Student Option; Every Spring)
Claim: if ethics (right/wrong) exists in war, then right/wrong exist everywhere. Students experience this claim through its expression in various arts/humanities media of history, memoir, philosophical meditation, and film.

COMM 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

COMM 3970. Directed Study. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq-One Comm course, instr consent, dept consent, college consent.

COMM 3980. Directed Instruction. (; 3 cr. [max 6 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Supervised planning/teaching of undergraduate courses. prereq: instr consent, dept consent

COMM 3990. Research Practicum. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
How communication research is designed, implemented, and published. Focus is on working with senior faculty on their current research projects.

COMM 3999W. Capstone Project. (WI; 1 cr. ; S-N only; Every Fall & Spring)
The Capstone is fulfilled by completing a 10-20 page capstone paper. Students seeking honors in communication studies may fulfill the capstone requirement with the honors thesis. The honors thesis is completed by taking 6 credits of of COMM 3190H, which counts towards the Additional Electives requirement. Students who double major and choose to complete the capstone requirement in their other major may waive the communication studies BA capstone, and they do not need to replace the 1 credit. Take COMM 3999W concurrently with any COMM 4xxx or 5xxx course. COMM 3999W is taken S-N only and must be taken during the same semester in which the capstone paper is written. The instructor sets the criteria for standards of quality and conceptual/theoretical content. Prerequisites: COMM major; instructor consent

COMM 4204. Producing for Television: Theory and Practice. (; 4 cr. ; Student Option; Every Fall)
Producing media content based on audience, design, and story. Developing a thematic design. Evaluating and choosing a projected audience based on story concept and program bible. Each student completes a television program, including writing a script, preproduction planning, and considering crew and talent needs. Media producer responsibilities. prereq: 3201, 3204

COMM 4235. Electronic Media and Ethnic Minorities--A World View. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Representation and involvement of various ethnic groups (e.g., African-Americans, Native Americans in United States and Canada, Maori, Turks in Europe) in radio, TV, cable, Internet. Roles of government, industry, public organizations, and minority groups in regulating, managing, and financing ethnic media activities.

COMM 4245. Critical Television Studies. (; 3 cr. ; Student Option; Periodic Fall)

Television as object of criticism, as cultural institution, and as omnipresent mode of commercialized popular culture. Aesthetics, semiotics, political economics, consumer culture/advertising, social representation, global television, televisuality, flow. Reception and everyday life. prereq: 3211

COMM 4251. Environmental Communication. (ENV; 3 cr. ; A-F only; Every Spring)
Historical, cultural, material contexts within which environmental communication takes place. Understand environmental communication as well as develop communication strategies that lead to more sustainable social practices, institutions, and systems.

COMM 4263. Feminist Media Studies. (DSJ; 3 cr. ; A-F only; Every Spring)
Issues, controversies, and practices of gender and their relationship to U.S. media. Ways in which gender is represented in and comes into play with media texts/institutions. Histories of feminism, theories/methods/political economy, case studies. prereq: 3211 or instr consent

COMM 4291. New Telecommunication Media. (; 3 cr. ; A-F or Audit; Periodic Fall)
Development and current status of new telecommunication media such as cable TV, satellites, DBS, MDS, and video disk/cassettes. Technology, historical development, regulation, and programming of these media and their influence on individuals, organizations, and society. prereq: 3211 or instr consent

COMM 4404W. Language Borderlands. (WI; 3 cr. ; Student Option; Every Fall)
Effect of multilingualism on self identity/sense of community. Subjective/social dimensions of being multilingual. Experience of language loss.

COMM 4407. Communication and Conflict. (; 3 cr. ; A-F or Audit; Every Fall)
Aspects of conflict common across types of relationships. Theories as alternative lenses to illuminate aspects of conflict. Communication strategies to manage or resolve conflict. prereq: 3401 or instr consent

COMM 4461. Prosocial Communication and Health. (3 cr. ; A-F or Audit; Periodic Spring)
There has been a shift in how we think about and study human health and well-being. This shift also emphasizes the cultivation of positive emotions, behaviors, and practices into our daily lives so that we may improve our relationships with others and ultimately our well-being. In this senior-level undergraduate seminar we will examine a) the meaning and importance of prosocial communication in our lives; b) the communicative and relational contributions of prosociality to our health and well-being; and c) how the popular press presents happiness research.

COMM 4471. Communication in Marriage and Family. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Contemporary theories of marriage/family communication using life-cycle approach. Role/function of communication in changing relational contexts. Ways of improving marriage/family relationships. prereq: 3401 or 3402 or instr consent

COMM 4602W. Contemporary Political Persuasion. (WI; 3 cr. ; Student Option; Periodic Fall)
Contemporary political speech. Ideologies in political persuasion. prereq: 1101, 3431 or instr consent

COMM 4616. African American Civil Rights Rhetoric. (; 3 cr. ; Student Option; Every Spring)
Uses the struggle of African Americans to explore and analyze philosophical concepts, political issues, moral complexities, and discursive characteristics of civil rights rhetoric. prereq: Jr

COMM 4621W. Rhetoric of Feminism. (DSJ,WI; 3 cr. ; Student Option; Every Fall)
History/criticism of rhetoric of feminism from 19th century to present.

COMM 5110. Special Topics in Communication Theory. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Summer)
Advanced theoretical problems. See department office for current offering.

COMM 5211. Critical Media Studies: Theory and Methods. (; 3 cr. ; A-F only; Every Spring)
Survey of theories, research methods, and scholars dominating critical media studies since late 1920s. prereq: Grad student or instr consent

COMM 5221. Media, Race, and Identity. (3 cr. ; Student Option; Periodic Fall)
Critical media studies perspective on cultural politics of race and ethnicity. Social construction of race, politics of racism, media representations of race. prereq: 3211 or instr consent

COMM 5231. Media Outlaws. (; 3 cr. ; Student Option; Fall Even Year)
People working outside of mainstream media institutions who find creative/provocative ways to use media as space for cultural, political, or economic critique/resistance.

COMM 5250. Environmental Communication. (; 3 cr. ; A-F only; Every Spring)
Historical, cultural, material contexts within which environmental communication takes place. Understand environmental communication as well as develop communication strategies that lead to more sustainable social practices, institutions, systems.

COMM 5261. Political Economy of Media Culture. (; 3 cr. ; Student Option; Every Fall & Spring)
Organizational practices of media communicators. Media content as link between communicators and audiences. How viewers use/process media content. prereq: 3211 or instr consent

COMM 5401. Advanced Theories of Communication. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Survey of major theoretical approaches to communication including, positivism, constructivism, and systems. prereq: 3401 or grad

COMM 5402. Advanced Interpersonal Communication. (; 3 cr. ; Student Option; Every Spring)
Social scientific approaches to interpersonal communication. Theory, research findings. prereq: 3401 or 3402

COMM 5411. Small Group Communication Research. (; 3 cr. ; A-F or Audit; Every Spring)
Survey of small group communication research; theory and practice. Group decision-making and leadership. prereq: 3411 or instr consent

COMM 5431. The Process of Persuasion. (; 3 cr. ; Student Option; Every Fall & Spring)
Communication campaigns (e.g., advertising, political) illustrating persuasive processes and theories. Research paper required. prereq: 3431

COMM 5441. Communication in Human Organizations. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Communication in organizational settings. Organizational structure and dynamics and their effect upon the communication process. Individual projects.

COMM 5451W. Intercultural Communication Processes. (WI; 3 cr. ; Student Option; Periodic Fall)
Theory and research on cultural differences in values, norms, behaviors, and perceptions that affect communication across cultures internationally and domestically.

COMM 5611. Survey of Rhetorical Theory. (3 cr. ; Student Option; Periodic Fall)
Rhetorical theory, from ancient to contemporary period. Application to public discourse.

COMM 5615W. Introduction to Rhetorical Criticism. (WI; 3 cr. ; Student Option; Every Spring)
Analysis of public discourse using various theoretical perspectives. prereq: 1101; 3601 recommended

COMM 5617. History and Criticism of U.S. Public Discourse: 1630-1865. (; 3 cr. ; Student Option; Periodic Fall)
How discourse has been used to establish or maintain power. Speeches and public debates used to examine American public address from 17th century (e.g., Puritan sermons) to the Civil War. prereq: Jr

COMM 5970. Directed Study. (1-3 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Instructor and department consent is required.

COMM 5994. Communication Research Practicum. (; 1-3 cr. [max 9 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Students participate in research group. prereq: instr consent

Compar Study in Discourse/Soc (CSDS)

CSDS 5302. Aesthetics and the Valuation of Art. (3 cr. ; Student Option; Periodic Fall & Spring)
Society, ideology, aesthetic value in light of recent critical theories of visual art, music, literature. Mediations of place, social class, gender, ideology on aesthetic judgment in post-renaissance Western culture.

Comparative & Molecular Biosci (CMB)

CMB 5200. Statistical Genetics and Genomics. (; 4 cr. ; A-F or Audit; Fall Even Year)
Statistical issues in genomics. Gene detection, including statistical analysis/designs for linkage study and for mapping quantitative trait loci. Linkage analysis using pedigree data for codominant/dominant markers. Using radiation hybrid mapping and single cell typing. Design issues in linkage analysis, parentage testing, and marker polymorphism.

CMB 5303. Comparative Models of Disease. (2 cr. ; A-F only; Every Spring)
Disease processes in organ systems. Examples of animal models. Comparative medicine. Clinical relevance of problem/disease. Animal models used to study disease process/problem. Lectures.

CMB 5340. Structural Biology in Biomedical Research. (2 cr. ; A-F only; Every Spring)
Structural biology plays a central role in biomedical research, but it is a challenging field to learn. This course teaches basic structural biology and its applications to biomedical research in an accessible and practical fashion. We will cover the principles and procedures of structural biology as well as structural biology databases and software. Students will also learn how structural biology is used to solve scientific problems (e.g., elucidating molecular mechanisms and designing drugs and vaccines) and acquire skills that may facilitate their own research (e.g., reading structural biology literature and designing mutations). Student learning is achieved through classroom lectures, computer labs, written critique and oral presentation of research literature, and participation in discussion. The overall goal of this course is to help students understand structural biology and use it in their own research.

CMB 5571. Pathogenomics and Molecular Epidemiology - Learning to Fly. (3 cr. ; A-F only; Every Spring)
This course is designed provide an introduction to the use of molecular methods in our understanding of the pathogenesis, etiology, and transmission of infectious diseases that are important to both animals and public health. This is intended as a hands-on course for the student to learn techniques related to genome sequencing, pangenome analysis, phylogenetic analysis, and metagenomic analysis, and then apply these techniques towards their own research.

CMB 5594. Directed Research in Comparative and Molecular Biosciences. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study as determined by instructor. Usual activity includes conducting research in instructor's lab. prereq: Jr, instr consent

CMB 5910. Grantwriting: What Makes a Winning Proposal?. (2 cr. ; Student Option; Every Spring)
Components of a strong proposal. Grant submission process. What reviewers look for. How to locate grant announcements that match reserach interests.

CMB 5912. Creativity. (1 cr. ; Student Option; Every Spring)
Creativity will be explored and used to provide new perspectives on a variety of professional goals, activities and challenges. Lectures will be followed by a mixture of individual and group activities to provide a guided exploration of how these creative approaches can be applied to many situations. Students will learn skills to expand their vision, become more adept at problem solving, design more innovative research, inspire themselves and others and become more fascinating communicators.

CMB 5915. Essential Statistics for Life Sciences. (3 cr. ; A-F or Audit; Every Fall)
This course is a broad overview of the principles and methods of statistical analysis used in life sciences research, including biological, veterinary, and translational research, and provides the background a new researcher needs to understand and apply commonly used statistical methods and the preparation needed for more advanced coursework. Classes will include general instruction and background information, detailed examples of how to perform the analyses, with actual data sets, and discussion on how the topic has been applied in biological research, including reading and assessing papers in the field. Computing will be performed using the R software environment, though students may use alternate software with permission. Topics will include: ? Descriptive statistics and exploratory graphics ? Understanding statistical inference and interpreting P-values and confidence intervals. ? One and two sample inference, including t-tests, proportion tests, and non-parametric alternatives ? Linear regression, including the effects of confounders ? ANOVA methods, including pairwise comparisons and multiple comparisons

Comparative Literature (CL)

CL 5992. Directed Reading in Comparative Literature. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading and study. prereq: instr consent

Computer Science (CSCI)

CSCI 1001. Overview of Computer Science. (MATH,TS; 4 cr. ; Student Option; Every Spring)
Foundations/limits of today's computing/information technology. How to reason about applications/technological advances. Policy issues. Algorithms for automating solutions. Abstraction in design/problem solving. Concepts of computer databases, networks, expert systems human-computer interaction, Internet, Web, desktop software, personal computers. prereq: Non-CSci major, non-CompE major, non-EE major

CSCI 1103. Introduction to Computer Programming in Java. (4 cr. ; Student Option; Every Fall)
Fundamental programming concepts/software development using Java language. Problem solving skills. Algorithm development techniques. Use of abstractions/modularity. Data structures/abstract data types. Substantial programming projects. Weekly lab.

CSCI 1113. Introduction to C/C++ Programming for Scientists and Engineers. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Programming for scientists/engineers. C/C++ programming constructs, object-oriented programming, software development, fundamental numerical techniques. Exercises/examples from various scientific fields. prereq: Math 1271 or Math 1371 or Math 1571H or instr consent

CSCI 1115. Exploring Computer Science Exercises in C++. (1 cr. ; S-N only; Every Fall & Spring)
This course is designed as a complement to CSCI 1113 for students who elect to devote additional time to get a broader exposure to concepts and practice of computer science. Students will work in small groups to sharpen their problem solving and computational skills, and be exposed to a variety of applications of computing.

CSCI 1133. Introduction to Computing and Programming Concepts. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Fundamental programming concepts using Python language. Problem solving skills, recursion, object-oriented programming. Algorithm development techniques. Use of abstractions/modularity. Data structures/abstract data types. Develop programs to solve real-world problems. prereq: concurrent registration is required (or allowed) in MATH 1271 or concurrent registration is required (or allowed) in MATH 1371 or concurrent registration is required (or allowed) in MATH 1571H or instr consent

CSCI 1133H. Honors Introduction to Computing and Programming Concepts. (; 4 cr. ; A-F only; Every Fall)
Programming concepts using Python language. Real world problem solving, recursion, object-oriented programming. Algorithm development techniques. Abstractions/modularity. Optional honors topics: programming robots, programming paradigms, artificial intelligence. prereq: [concurrent registration is required (or allowed) in MATH 1271 or concurrent registration is required (or allowed) in MATH 1371 or concurrent registration is required (or

allowed) in MATH 1571H], CSci majors, pre-majors in CSE/CLA, honors student

CSCI 1135. Exploring Computer Science Exercises in Python. (1 cr. ; S-N only; Every Fall & Spring)
This course is designed as a complement to CSCI 1133 for students who elect to devote additional time to get a broader exposure to concepts and practice of computer science. Students will work in small groups to sharpen their problem solving and computational skills, and be exposed to a variety of applications of computing.

CSCI 1913. Introduction to Algorithms, Data Structures, and Program Development. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Advanced object oriented programming to implement abstract data types(stacks, queues, linked lists, hash tables, binary trees) using Java language. Searching/sorting algorithms. Basic algorithmic analysis. Scripting languages using Python language. Substantial programming projects. Weekly lab. prereq: (EE major and EE 1301) or (CmpE major and EE 1301) or 1103 or 1113 or instr consent

CSCI 1933. Introduction to Algorithms and Data Structures. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Advanced object oriented programming to implement abstract data types (stacks, queues, linked lists, hash tables, binary trees) using Java language. Inheritance. Searching/sorting algorithms. Basic algorithmic analysis. Use of software development tools. Weekly lab. prereq: 1133 or instr consent

CSCI 1933H. Honors Introduction to Algorithms and Data Structures. (; 4 cr. ; A-F only; Every Spring)
Advanced object oriented programming to implement abstract data types (stacks, queues, linked lists, hash tables, binary trees) using Java language. Inheritance. Searching/sorting algorithms. Basic algorithmic analysis. Use of software development tools. Weekly lab. Optional honors topics: Advanced Java topics, GUI programming, CS research examples. prereq: [1133 or 1133H] and honors student, or inst consent

CSCI 2011. Discrete Structures of Computer Science. (; 4 cr. ; Student Option; Every Fall & Spring)
Foundations of discrete mathematics. Sets, sequences, functions, big-O, propositional/ predicate logic, proof methods, counting methods, recursion/recurrences, relations, trees/graph fundamentals. prereq: MATH 1271 or MATH 1371 or instr consent

CSCI 2011H. Honors Discrete Structures of Computer Science. (; 4 cr. ; A-F only; Every Spring)
Foundations of discrete mathematics. Sets, sequences, functions, big-O, propositional/ predicate logic, proof methods, counting methods, recursion/recurrences, relations, trees/graph fundamentals. Advanced topics in discrete structures as time permits. prereq: [MATH 1271 or MATH 1371 or MATH 1571H], honors student.

CSCI 2021. Machine Architecture and Organization. (4 cr. ; Student Option; Every Fall & Spring)
Introduction to hardware/software components of computer system. Data representation, boolean algebra, machine-level programs, instruction set architecture, processor organization, memory hierarchy, virtual memory, compiling, linking. Programming in C. prereq: 1913 or 1933 or instr consent

CSCI 2033. Elementary Computational Linear Algebra. (4 cr. ; Student Option; Every Fall & Spring)
Matrices/linear transformations, basic theory. Linear vector spaces. Inner product spaces. Systems of linear equations, Eigenvalues, singular values. Algorithms/computational matrix methods using MATLAB. Use of matrix methods to solve variety of computer science problems. prereq: [MATH 1271 or MATH 1371], [1113 or 1133 or knowledge of programming concepts]

CSCI 2041. Advanced Programming Principles. (4 cr. ; Student Option; Every Fall & Spring)
Principles/techniques for creating correct, robust, modular programs. Computing with symbolic data, recursion/induction, functional programming, impact of evaluation strategies, parallelism. Organizing data/computations around types. Search-based programming, concurrency, modularity. prereq: [1913 or 1933], 2011

CSCI 2081. Introduction to Software Development. (4 cr. ; Student Option; Every Fall & Spring)
Techniques for design and development of software using Java. Introduction to object-oriented programming and design, integrated development environments, inheritance and polymorphism. Software design principles, testing and debugging, and use of project management tools. Implementation of a software project using data structures, files, and I/O. This course is intended for non-CS Majors. Prerequisite: CSCI 1133, CSCI 1103, or CSCI 1113

CSCI 2980. Special Topics in Computer Science. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Periodic Fall & Spring)
Special topics. Lectures, informal discussions.

CSCI 2999. Special Exam. (4 cr. ; Student Option;)

CSCI 3003. Introduction to Computing in Biology. (; 3 cr. ; Student Option; Every Spring)
This course builds computational skills needed to carry out basic data analysis tasks common in modern biology. Students will learn computing concepts (algorithm development, data structures, complexity analysis) along with practical programming skills in Python and R. No previous programming knowledge assumed. Prereq: introductory biology course.

CSCI 3041. Introduction to Discrete Structures and Algorithms. (4 cr. ; Student Option; Every Fall & Spring)
Overview of strategies and techniques for the design and analysis of algorithms. Logic and proof techniques, asymptotic notation, recurrences, graphs and relations. Algorithm design strategies and examples from graph algorithms, greedy, divide-and-conquer, and dynamic programming. This course is intended for non-CS Majors. Prerequisite: CSci 2081 or instructor permission

CSCI 3061. Introduction to Computer Systems. (4 cr. ; Student Option; Every Fall & Spring)
Overview of the organization and interfaces of computing systems. Basics of machine organization, data representation, memory hierarchy and assembly language/ISA. Systems programming in C/C++, including memory management, files, processes and interprocess communication. This course is intended for non-CS Majors. prereq: CSci 2081 or instructor permission

CSCI 3081W. Program Design and Development. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Principles of programming design/analysis. Concepts in software development. Uses C/C++ language to illustrate key ideas in program design/development, data structures, debugging, files, I/O, state machines, testing, coding standards. prereq: [2021, 2041]; CS upper div, CS grad, or dept. permission

CSCI 3921W. Social, Legal, and Ethical Issues in Computing. (CIV,WI; 3 cr. ; Student Option; Every Fall)
Impact of computers on society. Computer science perspective of ethical, legal, social, philosophical, political, and economic aspects of computing. prereq: At least soph or instr consent

CSCI 3970. Industrial Student Co-op Assignment. (; 2 cr. [max 4 cr.] ; S-N or Audit; Every Fall & Spring)
Industrial work assignment in a co-op program involving advanced computer technology. Reviewed by a faculty member. Grade based on final written report. prereq: CSci, in co-op program, instr consent

CSCI 4011. Formal Languages and Automata Theory. (4 cr. ; Student Option; Every Fall & Spring)
Logical/mathematical foundations of computer science. Formal languages, their correspondence to machine models. Lexical analysis, string matching, parsing. Decidability, undecidability, limits of computability. Computational complexity. prereq: 2041 or instr consent

CSCI 4041. Algorithms and Data Structures. (4 cr. ; Student Option; Every Fall & Spring)
Rigorous analysis of algorithms/ implementation. Algorithm analysis, sorting algorithms, binary trees, heaps, priority queues, heapsort, balanced binary search trees, AVL trees, hash tables and hashing, graphs, graph traversal, single source shortest path, minimum cost spanning trees. prereq: [(1913 or 1933) and 2011] or instr consent; cannot be taken for grad CSci cr

CSCI 4061. Introduction to Operating Systems. (; 4 cr. ; Student Option; Every Fall & Spring)

Processes/threads, process coordination, interprocess communication, asynchronous events, memory management/file systems. Systems programming projects using operating system interfaces and program development tools. prereq: 2021 or EE 2361; CS upper div, CS minor, CompE upper div., EE upper div., EE grad, ITI upper div., Univ. honors student, or dept. permission; no cr for grads in CSci.

CSCI 4131. Internet Programming. (; 3 cr. ; Student Option; Every Fall & Spring)
Issues in internet programming. Internet history, architecture/protocols, network programming, Web architecture. Client-server architectures and protocols. Client-side programming, server-side programming, dynamic HTML, Java programming, object-oriented architecture/design, distributed object computing, Web applications. prereq: 4061, 4211 recommended, cannot be taken for grad CSci cr

CSCI 4203. Computer Architecture. (; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to computer architecture. Aspects of computer systems, such as pipelining, memory hierarchy, and input/output systems. Performance metrics. Examins each component of a complicated computer system. prereq: 2021 or instr consent

CSCI 4211. Introduction to Computer Networks. (; 3 cr. ; Student Option; Every Fall & Spring)
Concepts, principles, protocols, and applications of computer networks. Layered network architectures, data link protocols, local area networks, routing, transport, network programming interfaces, networked applications. Examples from Ethernet, Token Ring, TCP/IP, HTTP, WWW. prereq: 4061 or instr consent; basic knowledge of [computer architecture, operating systems] recommended, cannot be taken for grad CSci cr

CSCI 4271W. Development of Secure Software Systems. (WI; 4 cr. ; A-F or Audit; Every Spring)
Overview of threat modeling and security assessment in the design and development of software systems. Techniques to identify, exploit, detect, mitigate and prevent software vulnerabilities at the design, coding, application, compiler, operating system, and networking layers. Methods for effectively communicating system designs and vulnerabilities. Prerequisites: 3081W

CSCI 4511W. Introduction to Artificial Intelligence. (WI; 4 cr. ; Student Option; Every Spring)
Problem solving, search, inference techniques. Knowledge representation. Planning. Machine learning. Robotics. Lisp programming language. Cannot be taken for grad CSci credit. prereq: 2041 or instr consent

CSCI 4611. Programming Interactive Computer Graphics and Games. (3 cr. ; Student Option; Every Spring)
Tools/techniques for programming games/ interactive computer graphics. Event loops, rendering/animation, polygonal models, texturing, physical simulation. Modern graphics toolkits. History/future of computer games technology. Social impact of interactive computer graphics. prereq: 2021 or instr consent

CSCI 4707. Practice of Database Systems. (; 3 cr. ; Student Option; Every Fall & Spring)
Concepts, conceptual data models, case studies, common data manipulation languages, logical data models, database design, facilities for database security/integrity, applications. prereq: 4041 or instr consent

CSCI 4921. History of Computing. (HIS,TS; 3 cr. ; Student Option; Fall Even Year)
Developments in last 150 years; evolution of hardware and software; growth of computer and semiconductor industries and their relation to other businesses; changing relationships resulting from new data-gathering and analysis techniques; automation; social and ethical issues.

CSCI 4950. Senior Software Project. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Student teams develop a software system, distribute system to users, and extend/ maintain it in response to their needs. Software engineering techniques. Software development, team participation, leadership. prereq: Upper div CSci, instr consent

CSCI 4970W. Advanced Project Laboratory. (WI; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Formulate and solve open-ended project: design, implement, interface, document, test. Team work strongly encouraged. Arranged with CSci faculty. prereq: Upper div CSci, 4061, instr consent; cannot be taken for grad cr

CSCI 4994H. Honors Thesis. (; 1-3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Research work for an honors thesis arranged with a CS faculty member who is the adviser or coadviser. prereq: Honors student, instr consent

CSCI 5103. Operating Systems. (; 3 cr. ; Student Option; Every Fall)
Conceptual foundation of operating system designs and implementations. Relationships between operating system structures and machine architectures. UNIX implementation mechanisms as examples. prereq: 4061 or instr consent

CSCI 5105. Introduction to Distributed Systems. (; 3 cr. ; Student Option; Periodic Spring)
Distributed system design and implementation. Distributed communication and synchronization, data replication and consistency, distributed file systems, fault tolerance, and distributed scheduling. prereq: [5103 or equiv] or instr consent

CSCI 5106. Programming Languages. (; 3 cr. ; Student Option; Every Fall)
Design and implementation of high-level languages. Course has two parts: (1) language design principles, concepts, constructs; (2) language paradigms, applications. Note: course does not teach how to program in specific languages. prereq: 4011 or instr consent

CSCI 5115. User Interface Design, Implementation and Evaluation. (; 3 cr. ; Student Option; Every Fall)
Theory, design, programming, and evaluation of interactive application interfaces. Human capabilities and limitations, interface design and engineering, prototyping and interface construction, interface evaluation, and topics such as data visualization and World Wide Web. Course is built around a group project. prereq: 4041 or instr consent

CSCI 5117. Developing the Interactive Web. (; 3 cr. ; Student Option; Spring Even Year)
Hands-on design experience using modern web development tools. Students work in teams to develop software programs using each of four toolkits. Analyze developments in forum posts and classroom discussions. prereq: 4131 or 5131 or instr consent; upper div or grad in CSci recommended

CSCI 5123. Recommender Systems. (3 cr. ; Student Option; Fall Odd Year)
An overview of recommender systems, including content-based and collaborative algorithms for recommendation, programming of recommender systems, and evaluation and metrics for recommender systems. prereq: Java programming and 2033 and 3081, or instructor consent.

CSCI 5125. Collaborative and Social Computing. (; 3 cr. ; Student Option; Spring Even Year)
Introduction to computer-supported cooperative work, social computing. Technology, research methods, theory, case studies of group computing systems. Readings, hands-on experience. prereq: 5115 or instr consent

CSCI 5127W. Embodied Computing: Design & Prototyping. (WI; 3 cr. ; Student Option; Fall Even Year)
In this course, you will learn and apply the principles of embodied computing to human-centered challenges. Through a semester-long team project, you will learn and demonstrate mastery of human-centered embodied computing through two phases: (1) investigating human needs and current embodied practices and (2) rapidly prototyping and iterating embodied computing solutions. One of the ways you will demonstrate this mastery is through the collaborative creation of a written document and project capstone video describing your process and prototype. prereq: CSci 4041, upper division or graduate student, or instructor permission; CSci 5115 or equivalent recommended.

CSCI 5143. Real-Time and Embedded Systems. (; 3 cr. ; A-F only; Periodic Spring)
Real-time systems that require timely response by computer to external stimulus. Embedded systems in which computer is part of machine. Increasing importance of these systems in commercial products. How to control robots and video game consoles. Lecture, informal lab. prereq: [4061 or instr consent], experience with C language

CSCI 5161. Introduction to Compilers. (3 cr. ; Student Option; Every Spring)

Techniques for translating modern programming languages to intermediate forms or machine-executable instructions/their organization into compiler. Lexical analysis, syntax analysis, semantic analysis, data flow analysis, code generation. Compiler project for prototypical language. prereq: [2021, 5106] or instr consent

CSCI 5204. Advanced Computer Architecture. (; 3 cr. ; Student Option; Every Fall)
Instruction set architecture, processor microarchitecture, memory, I/O systems. Interactions between computer software and hardware. Methodologies of computer design. prereq: 4203 or EE 4363

CSCI 5211. Data Communications and Computer Networks. (; 3 cr. ; Student Option; Every Fall)
Concepts, principles, protocols, and applications of computer networks. Layered network architectures, data link protocols, local area networks, network layer/routing protocols, transport, congestion/flow control, emerging high-speed networks, network programming interfaces, networked applications. Case studies using Ethernet, Token Ring, FDDI, TCP/IP, ATM, Email, HTTP, and WWW. prereq: [4061 or instr consent], basic knowledge of [computer architecture, operating systems, probability], grad student

CSCI 5221. Foundations of Advanced Networking. (; 3 cr. ; Student Option; Spring Even Year)
Design principles, protocol mechanisms. Network algorithmics, implementation techniques. Advanced network architectures, state-of-art/emerging networking technologies/ applications, network modeling. Simulation, experiments. prereq: 4211 or 5211 or equiv; intro course in computer networks recommended

CSCI 5231. Wireless and Sensor Networks. (; 3 cr. ; Student Option; Spring Odd Year)
Enabling technologies, including hardware, embedded operating systems, programming environment, communication, networking, and middleware services. Hands-on experience in programming tiny communication devices. prereq: 4211 or 5211 or instr consent

CSCI 5271. Introduction to Computer Security. (; 3 cr. ; Student Option; Every Fall)
Concepts of computer, network, and information security. Risk analysis, authentication, access control, security evaluation, audit trails, cryptography, network/ database/application security, viruses, firewalls. prereq: 4061 or equiv or instr consent

CSCI 5302. Analysis of Numerical Algorithms. (; 3 cr. ; Student Option; Every Spring)
Additional topics in numerical analysis. Interpolation, approximation, extrapolation, numerical integration/differentiation, numerical solutions of ordinary differential equations. Introduction to optimization techniques. prereq: 2031 or 2033 or instr consent

CSCI 5304. Computational Aspects of Matrix Theory. (; 3 cr. ; Student Option; Every Fall)
Perturbation theory for linear systems and eigenvalue problems. Direct/iterative solution of large linear systems. Matrix factorizations. Computation of eigenvalues/eigenvectors. Singular value decomposition. LAPACK/other software packages. Introduction to sparse matrix methods. prereq: 2031 or 2033 or instr consent

CSCI 5421. Advanced Algorithms and Data Structures. (; 3 cr. ; Student Option; Every Fall & Spring)
Fundamental paradigms of algorithm and data structure design. Divide-and-conquer, dynamic programming, greedy method, graph algorithms, amortization, priority queues and variants, search structures, disjoint-set structures. Theoretical underpinnings. Examples from various problem domains. prereq: 4041 or instr consent

CSCI 5451. Introduction to Parallel Computing: Architectures, Algorithms, and Programming. (; 3 cr. ; Student Option; Every Spring)
Parallel architectures design, embeddings, routing. Examples of parallel computers. Fundamental communication operations. Performance metrics. Parallel algorithms for sorting. Matrix problems, graph problems, dynamic load balancing, types of parallelisms. Parallel programming paradigms. Message passing programming in MPI. Shared-address space programming in openMP or threads. prereq: 4041 or instr consent

CSCI 5461. Functional Genomics, Systems Biology, and Bioinformatics. (; 3 cr. ; Student Option; Every Spring)
Computational methods for analyzing, integrating, and deriving predictions from genomic/proteomic data. Analyzing gene expression, proteomic data, and protein-protein interaction networks. Protein/gene function prediction, Integrating diverse data, visualizing genomic datasets. prereq: 3003 or 4041 or instr consent

CSCI 5465. Introduction to Computing for Biologists. (3 cr. ; Student Option; Fall Odd Year)
This course is designed for graduate students in biology or other related sciences that wish to learn fundamental computing skills that will enable them to develop their own computational approaches for meaningful interpretation of scientific data. Students will complete programming assignments in Python and R. No previous programming knowledge assumed. Prereq: Introductory biology course; non-CSE students only.

CSCI 5471. Modern Cryptography. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to cryptography. Theoretical foundations, practical applications. Threats, attacks, and countermeasures, including cryptosystems and cryptographic protocols. Secure systems/networks. History of cryptography, encryption (conventional, public key), digital signatures, hash functions, message authentication codes, identification, authentication, applications. prereq: [2011, 4041, [familiarity with number theory or finite fields]] or instr consent

CSCI 5481. Computational Techniques for Genomics. (; 3 cr. ; Student Option; Every Fall)
Techniques to analyze biological data generated by genome sequencing, proteomics, cell-wide measurements of gene expression changes. Algorithms for single/multiple sequence alignments/assembly. Search algorithms for sequence databases, phylogenetic tree construction algorithms. Algorithms for gene/promoter and protein structure prediction. Data mining for micro array expression analysis. Reverse engineering of regulatory networks. prereq: 4041 or instr consent

CSCI 5511. Artificial Intelligence I. (3 cr. ; Student Option; Every Fall)
Introduction to AI. Problem solving, search, inference techniques. Logic/theorem proving. Knowledge representation, rules, frames, semantic networks. Planning/scheduling. Lisp programming language. prereq: [2041 or instr consent], grad student

CSCI 5512. Artificial Intelligence II. (; 3 cr. ; Student Option; Every Spring)
Uncertainty in artificial intelligence. Probability as a model of uncertainty, methods for reasoning/learning under uncertainty, utility theory, decision-theoretic methods. prereq: [STAT 3021, 4041] or instr consent

CSCI 5521. Introduction to Machine Learning. (3 cr. ; Student Option; Periodic Fall)
Problems of pattern recognition, feature selection, measurement techniques. Statistical decision theory, nonstatistical techniques. Automatic feature selection/data clustering. Syntactic pattern recognition. Mathematical pattern recognition/artificial intelligence. prereq: [[2031 or 2033], STAT 3021] or instr consent

CSCI 5523. Introduction to Data Mining. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Data pre-processing techniques, data types, similarity measures, data visualization/ exploration. Predictive models (e.g., decision trees, SVM, Bayes, K-nearest neighbors, bagging, boosting). Model evaluation techniques, Clustering (hierarchical, partitional, density-based), association analysis, anomaly detection. Case studies from areas such as earth science, the Web, network intrusion, and genomics. Hands-on projects. prereq: 4041 or equiv or instr consent

CSCI 5525. Machine Learning. (; 3 cr. ; Student Option; Fall Even Year)
Models of learning. Supervised algorithms such as perceptrons, logistic regression, and large margin methods (SVMs, boosting). Hypothesis evaluation. Learning theory. Online algorithms such as winnow and weighted majority. Unsupervised algorithms, dimensionality reduction, spectral methods. Graphical models. prereq: Grad student or instr consent

CSCI 5551. Introduction to Intelligent Robotic Systems. (; 3 cr. ; Student Option; Periodic Fall)
Transformations, kinematics/inverse kinematics, dynamics, control. Sensing (robot vision, force control, tactile sensing),

applications of sensor-based robot control, robot programming, mobile robotics, microrobotics. prereq: 2031 or 2033 or instr consent

CSCI 5552. Sensing and Estimation in Robotics. (; 3 cr. ; Student Option; Periodic Spring)
Bayesian estimation, maximum likelihood estimation, Kalman filtering, particle filtering. Sensor modeling and fusion. Mobile robot motion estimation (odometry, inertial,laser scan matching, vision-based) and path planning. Map representations, landmark-based localization, Markov localization, simultaneous localization/mapping (SLAM), multi-robot localization/mapping. prereq: [5551, Stat 3021] or instr consent

CSCI 5561. Computer Vision. (; 3 cr. ; Student Option; Every Spring)
Issues in perspective transformations, edge detection, image filtering, image segmentation, and feature tracking. Complex problems in shape recovery, stereo, active vision, autonomous navigation, shadows, and physics-based vision. Applications. prereq: 5511 or instr consent

CSCI 5563. Multiview 3D Geometry in Computer Vision. (3 cr. ; A-F or Audit; Every Spring)
The 3D spatial relationship between cameras and scenes in computer vision. Application to tasks such as planning robots, reconstructing scenes from photos, and understanding human behaviors from body-worn cameras data. Multiview theory fundamentals, structure-from-motion, state-of-the-art approaches, and current research integration. prereq: Undergraduate students enrolling in the course must have completed CSCI 2033 or have instructor consent.

CSCI 5607. Fundamentals of Computer Graphics 1. (3 cr. ; Student Option; Every Fall)
Fundamental algorithms in computer graphics. Emphasizes programming projects in C/C++. Scan conversion, hidden surface removal, geometrical transformations, projection, illumination/shading, parametric cubic curves, texture mapping, antialising, ray tracing. Developing graphics software, graphics research. prereq: concurrent registration is required (or allowed) in 2033, concurrent registration is required (or allowed) in 3081

CSCI 5608. Fundamentals of Computer Graphics II. (3 cr. ; Student Option; Periodic Spring)
Advanced topics in image synthesis, modeling, rendering. Image processing, image warping, global illumination, non-photorealistic rendering, texture synthesis. Parametric cubic surfaces, subdivision surfaces, acceleration techniques, advanced texture mapping. Programming in C/C++. prereq: 5607 or instr consent

CSCI 5609. Visualization. (3 cr. ; Student Option; Fall Even Year)
Fundamental theory/practice in data visualization. Programming applications. Perceptual issues in effective data representation, multivariate visualization, information visualization, vector field/volume visualization. prereq: [1913, 4041] or equiv or instr consent

CSCI 5611. Animation & Planning in Games. (3 cr. ; Student Option; Fall Odd Year)
Theory behind algorithms used to bring virtual worlds to life. Computer animation topics. Real-time, interactive techniques used in modern games. Physically-based animation, motion planning, character animation, simulation in virtual worlds. prereq: 4041 or 4611 or instr consent

CSCI 5619. Virtual Reality and 3D Interaction. (3 cr. ; Student Option; Spring Odd Year)
Introduction to software, technology/ applications in virtual/augmented reality, 3D user interaction. Overview of current research. Hands-on projects. prereq: 4611 or 5607 or 5115 or equiv or instr consent

CSCI 5707. Principles of Database Systems. (; 3 cr. ; Student Option; Every Fall)
Concepts, database architecture, alternative conceptual data models, foundations of data manipulation/analysis, logical data models, database designs, models of database security/integrity, current trends. prereq: [4041 or instr consent], grad student

CSCI 5708. Architecture and Implementation of Database Management Systems. (; 3 cr. ; Student Option; Every Spring)
Techniques in commercial/research-oriented database systems. Catalogs. Physical storage techniques. Query processing/optimization. Transaction management. Mechanisms for concurrency control, disaster recovery, distribution, security, integrity, extended data types, triggers, and rules. prereq: 4707 or 5707 or instr consent

CSCI 5715. From GPS, Google Maps, and Uber to Spatial Data Science. (3 cr. ; Student Option; Spring Even Year)
Spatial databases and querying, spatial big data mining, spatial data-structures and algorithms, positioning, earth observation, cartography, and geo-visulization. Trends such as spatio-temporal, and geospatial cloud analytics, etc. prereq: Familiarity with Java, C++, or Python

CSCI 5751. Big Data Engineering and Architecture. (3 cr. ; Student Option; Every Fall)
Big data and data-intensive application management, design and processing concepts. Data modeling on different NoSQL databases: key/value, column-family, document, graph-based stores. Stream and real-time processing. Big data architectures. Distributed computing using Spark, Hadoop or other distributed systems. Big data projects. prereq: 4041, 5707, or instructor consent.

CSCI 5801. Software Engineering I. (3 cr. ; Student Option; Every Fall)
Advanced introduction to software engineering. Software life cycle, development models, software requirements analysis, software design, coding, maintenance. prereq: 2041 or instr consent

CSCI 5802. Software Engineering II. (; 3 cr. ; Student Option; Periodic Spring)
Introduction to software testing, software maturity models, cost specification models, bug estimation, software reliability models, software complexity, quality control, and experience report. Student groups specify, design, implement, and test partial software systems. Application of general software development methods and principles from 5801. prereq: 5801 or instr consent

CSCI 5980. Special Topics in Computer Science. (; 1-3 cr. [max 27 cr.] ; Student Option; Periodic Fall & Spring)
Lectures and informal discussions on current topics in computer science. prereq: instr consent; may be repeated for cr

CSCI 5991. Independent Study. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study arranged with CS faculty member. prereq: instr consent; may be repeated for cr

CSCI 5994. Directed Research. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed research arranged with faculty member. prereq: instr consent; may be repeated for cr

CSCI 5996. Curricular Practical Training. (; 1 cr. [max 3 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Industrial work assignment involving advanced computer technology. Reviewed by faculty member. Grade based on final report covering work assignment. prereq: [CSci or CompE] major, instr consent

CSCI 5997. Curricular Practical Training Extension. (1 cr. [max 3 cr.] ; S-N only; Every Fall, Spring & Summer)
Extension of an industrial work assignment involving advanced computer technology. Grade based on final report covering work assignment. prereq: [CSci or CompE] major, instr consent

Construction Management (CMGT)

CMGT 2019. AutoCAD for Construction Managers. (; 2 cr. ; Student Option; Every Fall & Spring)
Most current version of AutoCAD software skills and construction concepts. 2-D techniques and business applications of computer-aided drafting (CAD) at job entry level. prereq: 30 sem cr

CMGT 3001W. Introduction to Construction. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
A wide range of construction-related topics and an overview of the industry itself are presented: type and size of projects, where the industry has come from and where it appears to be heading, and roles and responsibilities of participants. Through assignments and projects, the course defines project and construction sequences, materials and building systems, and project scheduling and delivery methods. Students will conduct research into construction materials, sustainability, and

self-selected topics. As a writing intensive course focused on developing skills crucial to professionals, it requires the production and revision of a variety of construction documents, including drawings and specifications.

CMGT 3011. Construction Plan Reading. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Intro to construction plan reading and construction documents (using architectural, civil, mechanical, electrical drawings and project manual). Read, understand, and interpret commercial construction plans and project manuals, including notes, symbols, and plan layout.

CMGT 3024W. Facility Programming and Design. (WI; 2 cr. ; A-F or Audit; Every Fall)
Facility Programming and Design moves through the process of defining a building-related need, evaluating the existing facility, exploring design solutions, and presenting a business case for the final project. This course is constructed from the viewpoint of the facility manager, and each step of the instruction and each assignment builds to the final project and presentation. It is a requirement for Construction Management degree and certificate students. It can also be used as an elective for undergraduate or graduate students pursuing degrees in architecture, civil engineering, facility management, interior design, housing studies, and other related majors. There are no formal prerequisites, but it is recommended that students have completed at least one of the following: 1. CMgt 3011 (Construction Plan Reading) or CMgt 3001/3001W (Introduction to Construction) taken before or simultaneously with this course; 2. completion of a first or second year architecture or interior design studio; 3. relevant prior experience in the facility management industry; 4. approval of the instructor.

CMGT 4000. The Construction Industry through Time and Tomorrow. (; 2 cr. ; A-F or Audit; Every Fall)
This course centers on the construction industry in all its facets. The intention is to ensure that students taking it are provided with an in-depth understanding of how the industry evolved from early times to the present day and where the industry may be heading in the future. Equipped with this knowledge, graduates will be in a better position to understand their role in whichever sector of the industry they choose to build their careers and to contribute to positive change and improvement in how the industry serves its clients. It should be emphasized that this course is neither a history of architectural or engineering design, nor of construction technology, but concentrates rather on industry structure, organization, and the way it delivers its products.

CMGT 4001. Innovative Contracting. (1 cr. ; A-F or Audit; Fall Odd Year)
The triple constraint of time/cost/quality has often been challenged by traditional design/bid/build delivery methods. The private sector has had a unique advantage in its ability to negotiate contracts in the absence of firm bidding rules, including the extensive use of design/build delivery methods, while the public sector has been required by statute to bid to the lowest responsible bidder using design/bid/build. In an attempt to find the right balance that respects the competitive public bidding process while taking advantage of alternative project delivery strategies, the public sector has used enabling legislation to aggressively find new ways to contract project delivery, improving quality, speed of delivery, and cost management while reducing risk. This course will explore the methods of innovative contracting used by MnDOT and their underlying strategies, techniques, metrics, and outcomes, using a case study approach.

CMGT 4002. Lean Construction. (; 1 cr. ; A-F or Audit; Spring Odd Year)
An introduction to lean principles and how they can be applied to the design and construction industrIes. Prerequisites: None, although planning/scheduling coursework or experience is recommended.

CMGT 4003. Managing with Building Information Modeling. (2 cr. ; A-F or Audit; Every Fall & Spring)
For 5,000 years we have used hand drawings to communicate ideas and methodologies, from Egyptian hieroglyphs to computer technology. Building information modeling (BIM) computer models act as simulators, analyzing architectural programs, materials, energy usage, constructability, construction sequencing, and more, down to tens of micrometers. Today, building systems such as sheet metal and steel are fabricated directly from 3D models; material quantities are extracted from modeled objects and tied to cost early in the design process; coordinated models are visualized by project teams, clarifying scope, and providing a vehicle for communication. This course combines high-level technical training in BIM software with theoretical processes for managing a construction project using BIM techniques and tools. Prereqs: None. However, if you have no prior experience with construction, we recommend CMgt 3001 - Intro to Construction and CMgt 4021 - Construction Planning and Scheduling for knowledge of industry project delivery. Basic computer skills are required.

CMGT 4011. Construction Documents and Contracts. (; 3 cr. ; Student Option; Every Fall & Spring)
Definition, interpretation, and utilization of drawings. Specifications, agreements, bidding forms, general conditions. Bonds, contracts, subcontracts, and related documents. Appropriate provisions for minority business participation, such as tax exempt status and wage rates. prereq: 3001, 45 sem cr

CMGT 4021. Construction Planning and Scheduling. (; 3 cr. ; Student Option; Every Fall & Spring)
Project planning, scheduling, and control. Considering/understanding alternatives. Industry techniques. Introduction to critical path method. Using commercial software on personal computers. Updating/analyzing project schedules. prereq: 3001, 3011, 45 sem cr

CMGT 4022. Construction Estimating. (; 3 cr. ; Student Option; Every Fall & Spring)
Purposes/uses of various estimates. Performing quantity take-off, organizing bidding process. Requesting/analyzing subcontractor proposals. Unit pricing. Using published resources. Preparing systems-based estimates. Related software, spreadsheets, custom applications. Linkages among estimates, budgets, cost control systems, and cost records. prereq: 3001, 3011, 45 sem cr

CMGT 4031. Construction Safety and Loss Control. (; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to construction safety, health, and loss control. Hazard recognition. Control procedures. Management systems for measuring/evaluating loss-control performances in construction industry. prereq: 3001, 45 sem cr

CMGT 4041W. Specifications and Technical Writing for Construction Professionals. (WI; 3 cr. ; Student Option; Every Spring)
Develop/enhance appropriate oral/written communication necessary for use in the construction process from planning phase through contract closeout. Develop construction-specific practical applications to facilitate the process and avoid common pitfalls. prereq: 4011 or concurrent registration is required (or allowed) in 4011

CMGT 4073. Building Codes for Construction Managers. (; 1 cr. ; Student Option; Every Spring)
Building codes history, foundation, structure, and organization. Importance to the built environment throughout building life cycle: design, construction, occupancy, demolition. Code compliance and role of building code official. Interpretation and application to specific scenarios. Recognizing and correcting code deficiencies. prereq: 45 cr or instr consent

CMGT 4081. Managing Erosion and Sediment Control on Construction Sites. (; 1 cr. ; A-F or Audit; Every Fall & Spring)
Designed for those who will supervise, run, or direct construction site operations, grading, culvert replacement, and bridge construction. Best management practices to reduce or control erosion and sedimentation. Topics include permit requirements, stakeholder roles and responsibilities, sample specifications, and using the Storm Water Pollution Prevention Plan (SWPPP). Soil erodibility, turf establishment techniques, grading techniques to minimize erosion, timing of installations, and proper application of best management practices are also covered. Students will learn how to implement an erosion and sediment control plan, the requirements of various regulatory agencies, and consequences of permit violations. Can be used to achieve the Erosion and Stormwater Construction Site Management Certification, which is required by the Minnesota Department of Transportation Standard Specifications on construction sites. prereq: CMGT 3001- Introduction to the Built Environment OR relevant experience

CMGT 4193. Directed Study. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent project. Topic arranged with/ supervised by construction management faculty. prereq: Admitted to CMgt major or minor or certificate

CMGT 4196. Construction Management Internship. (; 1 cr. [max 3 cr.] ; S-N only; Every Fall, Spring & Summer)
Hands-on work experience within a construction company, applying previous coursework in the workplace, contributing knowledge of best practices, and participating in career and business development exercises. prereq: [[CMgt] major or minor or certificate student], [jr or sr], dept consent

CMGT 4201. Construction Accounting. (; 2 cr. ; A-F or Audit; Every Fall)
Unique characteristics and dissimilarities crucial for all parties involved to understand/ manage the construction process. Unique aspects of construction financial accounting, managerial accounting, tax planning, and auditing. prereq: 3001, Acct 2050, ABus 4101

CMGT 4215. Facility Quality Assessment and Commissioning. (; 2 cr. ; A-F or Audit; Every Spring)
How to assess condition/quality of building site, exterior/interior of facility, and building equipment. Evaluating effectiveness/efficiency of facility operations/maintenance program. What to look for during building audits. How to write professional assessment reports. How to make useful recommendations for improvements. Value/purpose of building commissioning/ re-commissioning. prereq: 3001, [4213 or concurrent registration is required (or allowed) in 4213}, 4542, 4562

CMGT 4301. Introduction to Environmental Health & Safety. (; 3 cr. ; A-F or Audit; Every Fall)
While OSHA (Occupational Safety and Health Administration) remains the governmental regulatory agency, the responsibility for occupational safety and health of employees has evolved into an integral part of a variety of industries, including construction, health care, oil and gas extraction, and many more. The course provides a comprehensive understanding of environmental health and safety standards and their application to the management of workplace injury prevention and health promotion. prereq: 45 credits

CMGT 4302. Environmental Health Principles. (; 3 cr. ; A-F or Audit; Every Fall)
The construction industry has one of the highest morbidity and mortality rates among professions, and there is also an economic implication. Companies can reduce the risk of injuries, diseases, and death due to environmental hazards by implementing an appropriate health and safety plan. Plans must be continually reviewed to ensure they are current with new products, scientific evidence, legal parameters, and cultural changes. This course will review requirements and provide direction in controlling regulations related to environmental and occupational health, chemical and biological safety, hazardous materials, and other health hazards. prereqs: 45 credits completed. Some knowledge of construction management principles is strongly recommended.

CMGT 4303. Industrial Hygiene Principles. (; 3 cr. ; A-F or Audit; Every Spring)
Overview of the practice of industrial hygiene: the science of anticipating, recognizing, evaluating, and controlling workplace conditions that may cause workers' injury or illness. Presents critical topics to enhance technical skills, deepen understanding, and gain the necessary knowledge and tools to apply the principles of Industrial hygiene effectively, efficiently, and reasonably, including hazard types, routes of exposure, and determination of exposure levels, Also explores the industrial hygiene hazard evaluation process and how it applies to the goal of workplace safety, as well as related federal and state regulations. Students will examine specific workplace problems related to worker health and safety. Prerequisites: None

CMGT 4304. Fire and Life Safety Principles. (; 3 cr. ; A-F or Audit; Every Spring)
Provides an overview of the fire and life safety requirements for new and existing buildings, as indicated in the National Fire Protection Association (NFPA) Life Safety Code. The Code addresses life safety for fire emergencies, but also other types of emergencies, such as bomb threats. The purpose of the Code is to establish minimum requirements that will provide a reasonable degree of safety during emergencies in any structure. To apply the Code effectively, one must understand its legal authority in various jurisdictions, Code navigation, and the ways proper application of the Code can minimize the effects of a devastating fire or other emergency. Specific topics include building classification, types of construction, fire protection, means of egress, and occupancy features. The course will enhance technical skills and provide knowledge and tools to apply the Code effectively, efficiently, and reasonably. Students will prepare a facility compliance checklist that can be used in everyday execution of the principles learned in this course. Prerequisites: None

CMGT 4305. Health and Safety Planning and Management. (; 3 cr. ; A-F or Audit; Every Spring)
Companies can reduce the risk of injury, disease, and death due to environmental hazards by implementing an appropriate health and safety plan. Each plan must be continually reviewed to ensure it is current with new products, scientific evidence, legal parameters, and cultural changes. This course is a comprehensive study of the essential components of an effective safety planning and management system. It also examines the cultural aspects of integrating total safety planning and management into all levels of an operation. Prerequisites: None

CMGT 4422. Advanced Construction Cost Estimating. (; 2 cr. ; Student Option; Every Spring)
Advanced estimating concepts, including procurement, productivity, and value engineering. Working in teams, students develop and deliver a competitive bid for a real project and examine strategies to meet the owner's budget and expectations through value engineering approaches. prereq: CMGT 4022 or instr consent

CMGT 4471. Sustainability for Construction Managers. (; 2 cr. ; A-F or Audit; Every Spring)
Building industry's impact on the environment; sustainable building initiatives; environmental principles and practices in pre-con, construction, close-out and operations; impact on construction manager role, procurement methods, contracts, estimating and scheduling, and team structure; green adoption issues; current technologies; future trends.

CMGT 4542. Building Energy Systems. (; 3 cr. ; A-F or Audit; Every Spring)
Functions of building mechanical systems, their integration with other building components. Residential/commercial HVAC systems, alternative energy sources, energy effciency, structural implications of mechanical systems, indoor air quality, environmental strategies. Case studies. prereq: [3001, [jr or sr]] or instr consent

CMGT 4544. Materials and Structures I. (4 cr. ; A-F or Audit; Every Fall)
First part of the two-semester statics/materials/ structures sequence. Introduces basic statics as it relates to structural analysis, including a fundamental understanding of forces, loads, shears, and moments applied to structural elements. These principles will be applied through the development of beam diagrams using load path analysis. Provides an introduction to building structural systems and their design and construction process, and covers building loads and the methods of analyzing and designing structural elements such as beams and columns. Discusses the path of loads applied to a building and the structural materials?specifically, wood and steel?that are commonly used to support these loads in building construction. Finally, the course provides an overview of the tools and techniques used by the structural engineer in the course of building design, as well as basic procedures for choosing materials and member sizes for use in a building system.

CMGT 4545. Materials and Structures II. (4 cr. ; A-F or Audit; Every Spring)
Building on the engineering, materials, and structural concepts of Materials and Structures I, this course explores concrete as a material (components, manufacture, installation, and mix design), and in terms of its structural uses. Soils and aggregates (origin, analysis, and classification) and earthwork/compaction concepts are also surveyed. Laboratory testing of these materials is included. These two broad topics are then combined with masonry concepts to discuss foundations, retaining walls, slabs, and footings. Finally, lateral systems within a structure are discussed. An overall curriculum project (which will refer back to M&S I) will examine a real-world structural

system, including loading, engineering, materials, and construction aspects. prereq: CMgt 4544

CMGT 4550. Topics in Construction Management. (; 1-2 cr. [max 12 cr.] ; A-F or Audit; Periodic Fall & Spring)
Seminar. Timely issues/themes in construction management.

CMGT 4562. Building Envelope Design and Construction. (2 cr. ; A-F or Audit; Every Fall)
Science behind design of a weather-tight building envelope. Construction principles for foundations, exterior walls, windows, opening, roofs. Consequences of poor design/construction. Component review of building envelope (shell) elements. Testing/quality control strategies. Construction issues/envelope sequencing. prereq: None, but 4542 or 4572 or professional experience recommended

CMGT 4861. Construction Management Capstone. (; 3 cr. ; A-F or Audit; Every Spring)
Using a case study approach, explores concepts of project management, decision theory, and leadership needed to solve critical, complex, and even routine problems within construction businesses and their projects. Students will be required to think critically and creatively about the possible solutions and be able to effectively articulate those solutions. It will apply all prior construction management-related coursework into a comprehensive construction and facility project management capstone intended to demonstrate mastery of the construction and facility management body of knowledge prior to graduation. prereqs: CMGT 4011, 4021, 4022, and 4031 (which may be taken concurrently with instructor permission).

Coptic (COPT)

COPT 5001. Elementary Coptic. (; 3 cr. ; Student Option;)
Introduction to Coptic grammar and vocabulary, chiefly in the Sahidic dialect.

COPT 5002. Elementary Coptic. (; 3 cr. ; Student Option; Periodic Fall)
Reading a variety of Coptic literature, such as Gnostic, martyrological, or monastic texts. prereq: 5001 or equiv

Ctr for Spirituality/Healing (CSPH)

CSPH 1000. Topics in Whole Life Wellbeing. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Special topics offerings in Integrative Health/Wellbeing. Contact department for semester offerings.

CSPH 1001. Principles of Holistic Health and Healing. (; 2 cr. ; Student Option; Every Fall & Spring)
Principles/measures of holistic health that promote health and well being. Theory, how holistic health is incorporated into health care delivery system. Application/integration of holistic health into daily personal life.

CSPH 1101. Self, Society, and Environment: An Integral Systems Approach to Personal Wellbeing and Engagement. (; 3 cr. ; Student Option; Every Fall & Spring)
Complexity theory approach to internal/external systems that influence lives/health. Interrelated workings of mind, psyche, and body. Means of bringing these into dynamic balance. Environmental/social systems.

CSPH 3001. Introduction to Integrative Healing. (; 3 cr. ; Student Option; Every Fall & Spring)
Current US health care system/US cultural views of health/wellness. Various complementary/alternative medical systems/practices that might be integrated into current way of thinking about health/wellness/treatment of illness/disease. prereq: 60 credits or instr consent

CSPH 3101. Creating Ecosystems of Well-Being. (; 2 cr. ; Student Option; Every Fall & Spring)
Information, practices, and tools that enable individuals and communities to build capacity for well-being. Factors and ecosystems that contribute to health, happiness, and well-being. Students develop a personal plan for health and well-being and one for a community.

CSPH 3201. Introduction to Mindfulness-Based Stress Reduction. (; 2 cr. ; Student Option; Every Spring)
Techniques by which stress endemic in a fast-paced competitive culture can be reduced or worked with constructively. Students practice/apply techniques of mindfulness. Recent medical-scientific literature on physiological/psychological elements in the stress response.

CSPH 3211. Living on Purpose: An Exploration of Self, Purpose, and Community. (2 cr. ; Student Option; Every Fall & Spring)
Explore questions of meaning/purpose. Explore other people's ways of living on purpose. Consider big questions that shape present/future. Build framework to lead purposeful life. Primarily Online Course with 3 in-person meetings prereq: 30+ credits completed or instr consent

CSPH 3301. Food Choices: Healing the Earth, Healing Ourselves. (; 3 cr. ; Student Option; Every Spring)
Link between our food/diet, agricultural practices, and health of planet. Food security. Cultural/personal context of food choices. Ways that food is produced, especially industrial monoculture. Food choices and the earth's bio diversity. Land use, water use, pollution, energy needs, climate change. Alternatives: organic/sustainable, fair trade. Economic policies/choices. Global tradeoffs.

CSPH 4311. Foundations of Hatha Yoga: Alignment & Movement Principles. (3 cr. ; Student Option; Every Fall & Summer)
Anatomical considerations/understanding critical to executing safe/effective Hatha Yoga instruction. Overview of human gross anatomy/bodily systems essential to Hatha Yoga. First in sequence of three courses in University of Minnesota Yoga Teachers Education & Training Sequence. Students who complete sequence may be qualified to register with Yoga Alliance as 200 hour Registered Yoga Teacher. prereq: [Prerequisite PsTL 1135 Essentials of Human Anatomy and Physiology or equivalent], instr consent (prerequisite course may be taken concurrently)

CSPH 4312. Hatha Yoga Philosophy, Lifestyle, & Ethics. (3 cr. ; Student Option; Every Fall, Spring & Summer)
History, tradition, philosophy of Hatha Yoga with emphasis on ethical practice of Hatha Yoga. Study of classical/modern text. Foundational concepts of how to use knowledge to facilitate strong Yoga Asana, Pranayama, meditation practice. Second course in sequence of three (3) courses in University of Minnesota Yoga Teachers' Education & Training Sequence. prereq: 4311

CSPH 4313. Hatha Yoga Teaching Principles & Methodology. (2 cr. ; Student Option; Every Fall, Spring & Summer)
Communication/sequencing principles necessary for teaching effective, safe Hatha Yoga classes. Use knowledge/skills gained during prerequisite two Hatha Yoga courses. Practice skills through participation in Service Learning. Third course in sequence of three (3) courses in University of Minnesota Yoga Teachers' Education & Training Sequence. prereq: 4311, 4312

CSPH 5000. Explorations in Integrative Therapies and Healing Practices. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Research and practice on therapies, delivery of complementary therapies and, regulatory issues. prereq: Jr or sr or grad student or instr consent

CSPH 5101. Introduction to Integrative Healing Practices. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Cultural contexts of healing traditions. Integrative therapies presented by practitioners, including traditional Chinese medicine, meditation, mind-body healing, spiritual practices, energy healing, naturopathy, herbalism, movement therapies, homeopathy, manual therapies, nutrition. prereq: Jr or sr or grad student; or instructor consent

CSPH 5102. Art of Healing: Self as Healer. (; 1 cr. ; Student Option; Every Fall & Spring)
Introduction to individual transformational journey as part of health science education. Students become aware of their responsibility/resources to facilitate development of the self. Research data, experience of self that is part psychoneuroimmunology, mind-body-spirit approaches. Lecture, scientific literature, meditation, imagery, drawing, group interaction. prereq: Jr or sr or grad student or instr consent

CSPH 5111. Ways of Thinking about Health. (2 cr. ; S-N or Audit; Every Fall)
Cultural contexts explored through field-trip immersion experiences. Aspects of different health care systems. Indigenous North American, Vedic, traditional Chinese, biomedicine. Writing assignment. prereq: [Jr, Sr, or grad student standing], instr consent

CSPH 5115. Cultural Awareness, Knowledge and Health. (3 cr. ; Student Option; Every Spring)
How knowledge can become resource for individual, family, community health. Interactive glimpse of wisdom of cultural communities. Develop capacity to see culture within professional education/practice. Cultural constructs underpinning medical system, role of culture in interaction between practitioner/ patient, role of reconnection to cultural heritage in healing. prereq: Jr or sr or grad student or instr consent

CSPH 5118. Whole Person, Whole Community: The Reciprocity of Wellbeing. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)
This course explores the symbiotic and reciprocal relationship between individual and community health and wellbeing, as well as the many factors/forces which influence that relationship. Drawing upon recent studies in the area of reciprocal/symbiotic effects between individual wellbeing and community wellbeing, this course will include the following core topics: definitions of community and related dimensions of wellbeing, importance of Individual/Community reciprocity (Social Justice, Equity, Safety, and Trust), historical trauma and healing, and individual action and personal empowerment in community transformation. Utilizing elements of the Center for Spirituality & Healing's Wellbeing model and modes of contemplative practice, this course will ultimately assist learners through phases of individual reflection and mindfulness for the purpose of creating more open and reciprocal relationships with entities they describe as their communities. An extension of recent studies in the area of the reciprocal (or rippling) effect between individual wellbeing and community wellbeing this course will guide individuals in identifying the various communities in which they live or participate, the roles they "play" within those communities and why/ how this knowledge can help prepare them for action and leadership. Main themes of the course will include: - Mindfulness, Reflection and Healing: Historical Trauma and Marginalization. - Roles and Reciprocity: Justice, Equity, Security and Trust between individuals and their communities. - Transformation: Individual Action/Leadership as Bridge between Personal and Community Wellbeing.

CSPH 5121. Whole Systems Healing: Health and the Environment. (; 2 cr. ; Student Option; Every Fall & Spring)
Selected interfaces between human health and the environment. Using complexity theory as a theoretical framework, students use phenomenological methodologies to analyze and describe the interrelated dynamics of human and natural systems. Case studies. Develop strategies to optimize the healthy functioning of human/environmental systems. prereq: Jr or sr or grad student

CSPH 5201. Spirituality and Resilience. (; 2 cr. ; Student Option; Every Spring & Summer)
Links between resilience and spirituality. Applications of resilience/health realization model to students' personal/professional lives. Review of literature, theory, and research. prereq: Jr or sr or grad student or instr consent

CSPH 5212. Peacebuilding Through Mindfulness: Transformative Dialogue in the Global Community. (; 3 cr. ; Student Option; Every Spring & Summer)
Contemplative/mindfulness practice. Tapping into reservoir of strength, compassion, and wisdom that fosters expressions of unconditional love, reconciliation, and forgiveness. Shifting from ego centered cognitive analysis/assessment to heart centered presence and deep listening grounded in humility/compassion. Native American circle process, including use of talking piece. prereq: Jr or sr or grad student or instr consent

CSPH 5215. Forgiveness and Healing: A Journey Toward Wholeness. (; 3 cr. ; Student Option; Every Spring & Summer)
Impact of forgiveness on process of inter-/intra-personal healing. Forgiveness/healing in health care and social work settings from multiple spiritual/secular traditions. prereq: Jr or sr or grad student or instr consent

CSPH 5225. Meditation: Integrating Body and Mind. (; 2 cr. ; Student Option; Periodic Fall)
Meditation as a physical, emotional, intellectual, and spiritual inquiry. Students examine a variety of texts and develop ability to enter a state of calm, meditative awareness. prereq: Jr or sr or grad student or instr consent

CSPH 5226. Advanced Meditation: Body, Brain, Mind, and Universe. (; 1 cr. ; Student Option; Periodic Fall)
Students work to integrate meditation practice into daily life, cultivating awareness of the fundamental oneness of body, brain, mind, and universe. Mind-body interactions in health. "Hard problem" of consciousness in brain science. Emergence of compassion, wisdom, and healing in non-discursive awareness. prereq: [5225, [jr or sr or grad student]] or instr consent

CSPH 5303. Pain Management and Evidence Based Complementary Health Approaches. (; 3 cr. ; A-F only; Every Fall & Spring)
This course will cover the evidence regarding effectiveness and safety of CIH practices, and the relationship of CIH to contemporary views of pain, health, and healing. There is a growing evidence base to support some complementary and integrative healing (CIH) approaches for pain management including yoga, mindfulness meditation, chiropractic, and others. In the US, chronic pain impacts over one third of the population and affects more individuals than heart disease, diabetes, and cancer combined. While there is a wide range of conventional medical treatments available to manage pain, many are only marginally effective and are associated with troublesome side effects. Of growing concerns is the endemic problem of opioids associated with misuse, addiction, and fatal overdose. Pain sufferers and health providers need effective and safe options for pain management. Some complementary and integrative healing (CIH) approaches have a growing evidence base to support their use, particularly for pain management. This course will introduce students to the theories, mechanisms, use, effectiveness, and safety of commonly used complementary and integrative healing practices. The relationship of CIH approaches to contemporary views and research regarding pain, health and healing, and placebo effects will also be explored. Through reading, reflection, discussion, and critical appraisal, students will develop the necessary skills to synthesize different forms of information, including research, to reach evidence-informed and balanced conclusions regarding CIH for managing pain, restoring function, and enhancing overall health and wellbeing. CIH approaches covered will include: whole systems (Traditional Chinese Medicine, osteopathy, chiropractic, Ayurvedic Medicine, etc.); mind-body practices (contemplative and meditative practices; yoga, tai chi, Qigong, etc.); manipulative and body-based approaches (massage therapy, acupuncture, manipulation); and energy-based approaches (energy medicine, Reiki, therapeutic touch, healing touch). Upon completion of the course, students will have a foundational knowledge of CIH for pain management and the skills to critically appraise and determine the trustworthiness of different information sources. Prerequisite: Graduate or Professional program student.

CSPH 5305. Introduction to Integrative Mental Health. (; 2 cr. ; Student Option; Every Spring)
Prerequisite: Graduate or Professional student. This course focuses on introducing students to the concept of integrative mental health (IMH). Definitions of IMH, the history and background of the concept, and how it relates to psychiatric care and health care in general will be explored. Students will explore and practice risk-benefit profiles of different modalities in the context of evidence-based mental health care. An emphasis will be placed on the connection between physical and mental health and how that can be approached from an integrative perspective. Topics such as mindfulness and mental health, nutrition and mental health, herbs and supplements in psychiatric care, and the role of functional medicine in IMH will be covered, as well as how psychotherapy and psychotropic medications fit in the IMH framework. Students will review the current diagnostic system for mental health disorders and that can both help and hinder an integrative approach to mental health care. Integrative approaches for assessing mental health concerns will be reviewed, and how to use these approaches alongside a traditional medical approach for maximum benefit will be explored. Students will further review specific modalities for mental health and wellbeing that are less focused on specific systems and more focused on holism and the interplay of systems. Students will also identity and explore different ways of viewing mental health and wellbeing based on cultural and geographical issues, and how these may impact the approaches.

CSPH 5307. Integrative Nursing: Application across Settings and Populations. (; 1 cr. ; Student Option; Every Fall & Spring)

Prerequisites: registered nurse, graduate level registration only. Principles and application of integrative nursing will provide learners with skills that can be immediately applied to nursing practice, advanced nursing practice, and nurse leadership. Clinical case studies and interactive discussion will be used for students to learn how to practice integratively in their current healthcare role or to develop into a new role or paradigm. Case studies will be individualized to fit the needs of all learners for applicable skill building.

CSPH 5311. Introduction to Traditional Chinese Medicine. (; 2 cr. ; A-F or Audit; Every Spring & Summer)
Philosophical roots of Shamanism, Confucianism, Taoism, and Buddhism. Influence of these philosophies on Chinese medicine. Evolution of concepts of the tao, Yin-Yang, microcosm, macrocosm. Development of herbal medicine, Tui Na, Qi Gong, acupuncture, moxibustion. Traditional Chinese medicine etiology of disease, physiology, diagnosis, therapy, disease prevention, ethics, psychology, cosmology. prereq: Jr or sr or grad student or instr consent

CSPH 5313. Acupressure. (; 1 cr. ; Student Option; Every Fall & Summer)
Principles/applications. Location, indications for use, and techniques of stimulation of acupressure points. Methods for self care and care of others. Treatment of pain conditions, chronic health conditions, palliative care, oncology, women's health care.

CSPH 5315. Traditional Tibetan Medicine: Ethics, Spirituality, and Healing. (; 2 cr. ; Student Option; Periodic Fall)
Ethics, spirituality, and healing from perspective of traditional Tibetan medicine. Belief that illness results from imbalance and that treating illness requires correcting underlying imbalance. How to apply these principles, integrate them into clinical practice, and consult with a traditional Tibetan doctor. prereq: Jr or sr or grad student or instr consent

CSPH 5317. Yoga: Ethics, Spirituality, and Healing. (; 2 cr. ; Student Option; Every Summer)
Students test claim that systematic yoga practice leads to optimal health. Yoga's philosophy, scientific evidence, practical application. Students propose research-based programs for integrating yoga into personal/professional life.

CSPH 5318. Tibetan Medicine, Ayurveda, and Yoga in India. (; 4 cr. [max 12 cr.] ; Student Option No Audit; Every Fall & Summer)
Students study with expert practitioners in India. Using critical thinking, philosophical knowledge, cultural practices, scientific evidence, and research-based programs to integrate these traditions into personal/professional life. prereq: [5315, 5317] or instr consent

CSPH 5319. Yoga and Ayurveda in India. (4 cr. ; Student Option No Audit; Every Spring)
Yoga and Ayurveda are interrelated, ancient, holistic Indian traditions that integrate ethics, spirituality, and healing. While studying with expert practitioners at the University of Minnesota and in India, students will examine the claim that the systematic practice of these traditions promotes healing and optimal health. prereq: CSPH 4311 (and instructor approval), CSPH 5317 or CSPH 5318 or instructor consent.

CSPH 5331. Foundations of Shamanism and Shamanic Healing. (; 2 cr. ; S-N or Audit; Periodic Fall)
3 ?-day retreat intensive. Shamanic philosophies, ritual etiquette, Core beliefs common to all shamanic healing practices. Cross-cultural healing beliefs/practices, unique psychology for understanding them, their use with contemporary healing practices and for personal growth. prereq: Jr or sr or grad student or instr consent

CSPH 5341. Overview of Indigenous Hawaiian Healing. (; 2 cr. ; Student Option; Every Fall)
Traditional Hawaiian healing. ho'olomilomi (massage), la'au lapa'au (herbal medicine) and ho'opoonopono (conflict resolution). Hawaiian epistemology, traditions, and cultural values compared with western. The science of traditional ecological knowledge for healing and self-reliance.

CSPH 5343. Ayurveda Medicine: The Science of Self-healing. (; 2 cr. ; Student Option; Every Fall)
Principles of Ayurveda. Evidence-based information. Balance of body, mind and spirit for optimum health. Ayurvedic constitutional types. Herbal medicine, detoxification, massage. Personal plans for health and well-being. How Ayurveda is being integrated into health care settings.

CSPH 5401. People, Plants, and Drugs: Introduction to Ethnopharmacology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Biologically active substances used in traditional cultures. Ethnopharmacology's past, current, and potential contributions to human knowledge. Concrete examples. prereq: Jr or sr or grad student or instr consent

CSPH 5421. Botanical Medicines in Integrative Healthcare. (3 cr. ; Student Option; Every Fall)
Widely-used botanical medicines from biomedical perspective. Alternative therapeutic systems presented according to bodily systems/processes. Evidence for therapeutic use. Botanical characteristics, traditional uses, chemical properties, dosage, hazards/safety issues, quality control. prereq: Jr or sr or grad student or instr consent

CSPH 5423. Botanical Medicines: Foundations and Practical Applications. (; 1 cr. ; Student Option; Every Summer)
Theoretical underpinnings. Skills to gather, process, and apply selected local plants/herbs. Multi-sensory of herbalists. Empirical scientific evidence for key plants.

CSPH 5431. Functional Nutrition: An Expanded View of Nutrition, Chronic Disease, and Optimal Health. (; 2 cr. ; Student Option; Periodic Fall)
Principles of nutrition related to metabolic function. Model attempts to reduce chronic disease by looking for underlying causes/triggers and to intervene to restore function and achieve optimal health. Emphasizes importance of nutrition as a component of self-care. prereq: [Jr or sr or grad student] in Health Sciences or instr consent

CSPH 5503. Aromatherapy Fundamentals. (; 1 cr. ; Student Option; Every Spring & Summer)
For health professional students/practicing health professionals. Essential oil therapy and current aromatherapy practices in clinical settings. Key safety/toxicity issues. Critique scientific/historical evidence about the therapeutic qualities of six essential oils in common use by the public and in clinical settings. prereq: Jr or sr or grad student

CSPH 5513. Living Well, Dying Well: Empowering Patient Communication at the End of Life. (2 cr. ; Student Option No Audit; Every Fall)
Students will learn how to provide compassionate and effective care at the end of life, including appropriate communication with patients, families, and healthcare providers at crucial points of care. Students will also explore their own perspectives about end of life and learn the importance of self-care. The course will help students reframe end-of-life care from a focus on medical death to an emphasis on humane dying through reflection on values, hopes, and plans. Students will learn to support individuals through personal connection and the sharing of narratives and wisdom.

CSPH 5521. Therapeutic Landscapes. (; 3 cr. ; Student Option; Every Spring)
Principles of therapeutic design for specific population requirements. Therapeutic landscape design. Incorporates interdisciplinary interaction between horticulture, landscape architecture, and health science departments. prereq: [Jr or sr or grad student] in [health sciences or therapeutic recreation or horticulture or landscape architecture] or health professional or instr consent

CSPH 5522. Therapeutic Horticulture. (; 3 cr. ; Student Option; Periodic Fall)
Central elements of therapeutic horticulture in context of multiple health care settings. Evidence-based history, principles, precepts, and practical application of therapeutic horticulture. Various plant/plant-related modalities from current research findings are related to populations, using therapeutic horticulture as a treatment intervention. prereq: 5101 or Hort 5072 or instr consent

CSPH 5523. Applications in Therapeutic Horticulture. (; 2 cr. ; Student Option No Audit; Every Summer)
How to develop comprehensive program plans in therapeutic horticulture. Evidence-based principles, facilitation techniques. Documentation, assessment, program development techniques, evaluation. Leadership training, program plan components, book reviews, readings, comprehensive exam.

CSPH 5535. Reiki Healing. (; 1 cr. ; S-N only; Every Fall, Spring & Summer)
History, principles, precepts, and practical application of Reiki energy healing. Alternative energy healing modalities, current research findings. Activation of the Reiki energy, hand positions to perform a treatment. Students provide Reiki treatments, discuss findings. prereq: Jr or sr or grad student or instr consent

CSPH 5536. Advanced Reiki Healing: Level II. (; 1 cr. ; S-N only; Every Spring)
Principles/application of Reiki energy healing. Four levels of healing. Emphasizes healing at spiritual level. Activation of Reiki energy. Symbols that allow for energy transfer through space/time. Using second level Reiki energy for both distance healing and standard Reiki treatment. Students provide Reiki treatments, discuss findings. Current literature, research findings. prereq: 5535, instr consent

CSPH 5541. Emotional Healing and Happiness: Eastern and Western Approaches to Transforming the Mind. (; 2 cr. ; Student Option; Every Fall)
Experiential training in the cultivation of happiness, emotional health, and healing for multi-disciplinary professions. Ancient/contemporary, eastern/western approaches. How to increase positive emotions and mind states. Meditation, integrative approaches. Case examples. prereq: Sr or grad student or instr consent

CSPH 5555. Introduction to Body and Movement-based Therapies. (; 2 cr. ; Student Option; Periodic Fall)
Theories/approaches of selected somatic therapies, including dance, movement, and body-based therapies. Historic/theoretical perspectives on use of movement, dance, and somatic re-patterning. Demonstrations of techniques. Application of techniques to specific populations/settings. prereq: Jr or sr or grad student or instr consent

CSPH 5561. Overview of the Creative Arts in Health and Healing. (; 2 cr. ; Student Option; Every Summer)
How creative arts therapies are integrated into health care. Art therapy, poetry therapy, dance/movement therapy, music therapy. Guided experiential exercises, discussions, readings, individual learning interventions, lectures. prereq: Jr or sr or grad student

CSPH 5601. Music, Health and Healing. (; 2 cr. ; Student Option; Every Fall & Summer)
Music therapy, music medicine, music psychotherapy. Techniques/interventions. Hypotheses/rationale related to interventions. Related research. prereq: Jr or sr or grad student or instr consent

CSPH 5605. Movement and Music for Well-being and Healing. (; 2 cr. ; Student Option; Every Fall)
Music therapy/medicine. Dance/movement therapy. Laban movement analysis. Somatic studies. Health care settings, patient populations, illnesses/diagnoses. Research surrounding approaches. Readings, lectures, discussion.

CSPH 5631. Healing Imagery I. (; 2 cr. ; Student Option; Every Spring)
How imagery and imagery interventions are implemented for healing and to promote health/well-being. Experience/create imagery interventions. Instructional strategies include experiential, discussions, readings, lecture, and individual learning interventions. prereq: Jr or sr or grad student

CSPH 5641. Animals in Health Care: The Healing Dimensions of Human/Animal Relationships. (; 3 cr. ; Student Option; Every Summer)
Central elements of animal assisted therapy in multiple health care settings. History, principles, and evidence-based guidelines. Community-based interventions, in-class demonstrations, field trips. prereq: Jr or sr or grad student

CSPH 5642. Nature Heals: An Introduction to Nature-Based Therapeutics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will cover the basic theories and approaches of Nature-Based Therapeutics including restorative environments, therapeutic horticulture, animal assisted interactions, therapeutic landscapes, forest bathing, green care farming, facilitated green exercise, wilderness therapy and ecopsychology. The course includes: 1) historic and theoretical perspectives 2) research into specific techniques 3) application of techniques to specific population and setting

CSPH 5643. Horse as Teacher: Intro to Nature-Based Therapeutics Equine-Assisted Activities & Therapies (EAAT). (3 cr. ; Student Option; Every Fall)
This course is designed to introduce students to the field of Equine-Assisted Activities and Therapies (EAAT) and to the range of therapeutic and learning opportunities found within equine interactions. Five domains of practice in EAAT are covered and include physical, social, cognitive, psychological and spiritual contexts. The course presents historical and theoretical concepts which helped develop various types of EAATs, and how the growth of EAAT nationally and internationally has continued to mold the profession. Students will learn to describe safety guidelines, best practices as they are currently known, and precautions and contraindications in EAAT sessions. During a three-day face-to-face class, students will engage in hands-on learning with horses and apply course concepts and topics during this intensive. Students will evaluate peer-reviewed literature in EAAT research to identify the strengths and weaknesses of such published material. Students will synthesize reading, lecture and experiential learning to develop an EAAT plan for an assigned target group population. prereq: jr or sr or grad or instr consent

CSPH 5701. Fundamentals of Health Coaching I. (4 cr. ; A-F only; Every Fall)
Tenets of health coaching model. Tools for self development, deep listening, communication. Building blocks for optimal health from holistic perspective. How to identify/benchmark stages/patterns of change, interface with interdisciplinary health care providers, educate clients on self-care practices. prereq: admitted to Integrative Health and Wellbeing Coaching MA program; or, Integrative Therapies and Healing Practices Certificate-Health Coaching track; or, instr consent.

CSPH 5702. Fundamentals of Health Coaching II. (; 4 cr. ; A-F or Audit; Every Spring)
Basic tenets of health coaching model. Tools for self development, deep listening, and effective communication. Core building blocks for optimal health from a holistic perspective. Identifying/benchmarking stages/patterns of change, interfacing with interdisciplinary health care providers, locating resources to assist clients in decision making, and educating clients on self-care practices. prereq: CSPH 5701; admitted to Integrative Health and Wellbeing Coaching MA program; or, Integrative Therapies and Healing Practices Certificate-Health Coaching track; or, instr consent.

CSPH 5703. Advanced Health Coaching Practicum. (3 cr. ; A-F only; Every Fall)
Case-based. Identify/utilize broad-based resources in guiding/supporting individual client cases. Application of theory/process from earlier courses. Ethical issues, professional boundaries, referral processes, client selection. prereq: 5101, 5701, 5702, admitted to Integrative Health and Wellbeing Coaching MA; or, Integrative Therapies and Healing Practices Certificate-Health Coaching track.

CSPH 5704. Business of Health Coaching. (2 cr. ; A-F only; Every Fall)
Applying health coaching knowledge/skills in service delivery venues or private practice. Starting business. Business models. Student determine structure/venue appropriate for them. Legal/ethical considerations. prereq: 5101, 5701, 5702, admitted to Integrative Health and Wellbeing Coaching MA; or, Integrative Therapies and Healing Practices Certificate-Health Coaching track; or inst consent.

CSPH 5705. Health Coaching Professional Internship. (2 cr. ; S-N only; Every Spring)
120 hours of health coaching practice. Students work with individual clients in acute/longitudinal encounters, provide wellness teaching, design career plan. Prerequisite CSPH 5701, 5702, 5703; admitted to Integrative Health and Wellbeing Coaching MA; or, Integrative Therapies and Healing Practices Certificate-Health Coaching track [CSPH 5101, 5704 recommended]

CSPH 5706. Lifestyle Medicine. (; 2 cr. ; Student Option; Every Fall & Summer)
This course provides a foundation in the theory and clinical application of lifestyle medicine. Lifestyle medicine aims to address the behavioral and lifestyle bases of common illnesses through health promoting activities and reducing harmful behaviors. In this course, we will explore optimal nutrition, lifestyle, physical activity, and attitude. We will examine the emerging evidence base of lifestyle medicine and how it relates to health promotion

and disease prevention. Participants will be introduced to common laboratory and imaging findings, and how they relate to optimal health. prereq: basic course in Biology or Human Physiology.

CSPH 5707. Coaching People with Clinical Conditions. (2 cr. ; Student Option; Every Spring & Summer)
This course provides the student with a basic awareness and expanded perception of prevalent clinical conditions, and supports the development of empathy. It equips the student with best practice coaching skills to use with a client managing one or more clinical conditions. And it supports the development of professional communication skills. prereq: CSPH 5701, 5702 and 5706; practicing health professional admitted to one of the following programs: Integrative Health and Wellbeing Coaching Master's or Integrative Therapies and Healing Practices Certificate-Health Coaching track, or instructor consent.

CSPH 5708. Mind-Body Science and the Art of Transformation. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Explore how utilizing transformative practices changes in our physical brain, thoughts, beliefs, bodies, emotions and paradigms and create sustainable shifts towards optimal health, wellness and living. This course will include knowledge and discoveries from multiple disciplines including but are not limited to psychologists, scientists, quantum physicist, philosophers, healers, educators. The mind-body research has accelerated dramatically in the past couple decades and will provide students with an opportunity to discover new ways of understanding our human brains and bodies. This in turn provides new insight and innovation into human behavior and sustainable transformative change.

CSPH 5709. Health and Wellbeing Group Coaching. (2 cr. ; Student Option No Audit; Every Fall)
The Group Coaching course expands the competencies of the Health Coach from the one-to-one coaching process to a group format. Theories and tools of group coaching will be applied to facilitating a group coaching process in the community. Course progress will include: Foundations of Group Coaching; Developing Group Coaching Skills; Application of Group Coaching Skills to a Community Organization; Expanding Theory and Application of Group Coaching. Prereq admission to Integrative Health & Wellbeing MA or graduate of Certificate in Integrative Therapies and Healing Practices-Health Coaching program or instructor approval; CSPH 5701,5702,5706; recommended CSPH 5707; or instructor approval.

CSPH 5711. Optimal Healing Environments. (; 3 cr. ; Student Option; Every Fall)
Development/implementation of optimal healing environments. Evidence base supporting structural, architectural, human, and care processes. Emphasizes identifying models of optimal healing environments and leadership strategies that support diffusion of innovation. prereq: Jr or sr or grad student or instr consent

CSPH 5712. Supervised Health Coaching Skills Advancement. (1-2 cr. [max 6 cr.] ; S-N only; Every Fall, Spring & Summer)
Prereq admitted to Integrative Health and Wellbeing Coaching Master of Arts, Integrative Therapies and Healing Practices Certificate-Health Coaching Track; CSPH 5701; CSPH 5702; or instructor consent. This course provides Health Coaching students the opportunity to advance coaching skills/ strategies through individual client practice under the supervision of an experienced Health Coaching instructor. The student health coach will engage in recorded in-person and/or telephone coaching sessions, and receive live feedback from the instructor. The student will assess their own integration of coaching skills through completion of self-skills assessment (level appropriate) that includes self-reflection. A final skills assessment (level appropriate) will be completed utilizing the standardized tool developed for the University of Minnesota Health Coaching program (developed in alignment with guidelines the International Consortium for Health and Wellness Coaching).

CSPH 5713. Health Coaching for Health Professionals. (2 cr. ; A-F only; Every Fall)
Prereq enrolled in Doctor of Nursing Practice-Integrative Health and Healing track or other health professional program; or instr consent. This course explores the basic tenets of the four pillars of health coaching model: self-awareness, mindful presence, authentic communication, and safe/sacred space. Students will learn to identify/benchmark stages/patterns of change and to respectfully collaborate with interdisciplinary health care providers and facilitate clients ability to achieve sustainable lifestyle changes. Consistent, nonjudgmental application of a holistic perspective of optimal health and wellbeing in patient encounters will be discussed and demonstrated. Students will have the opportunity to observe and to practice applying tools and practices from motivational interviewing, emotional intelligence, appreciative inquiry and non-violent communication. Students will identify the basic elements of an effective coach/client interchange in order to apply basic, effective coaching techniques. Students will be able to differentiate between health coaching, nurse education, case/disease management, and therapy. The course will discuss the importance of ongoing personal development in one's professional practice so that students may apply tools for self-reflection and personal growth in their own lives and work settings.

CSPH 5805. Wellbeing in the Workplace. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Work and experiences in the workplace have a profound impact on many dimensions of individual and collective wellbeing, including a sense of purpose and meaning, financial and emotional security, quality of relationships and community, physical and emotional health, and the local and global environments. In this course, students will learn multi-disciplinary perspectives on key challenges in creating workplaces that contribute to greater wellbeing. Students will also reflect on their own personal experiences with wellbeing in their current and past work environments and examine strategies for enhancing wellbeing based on interdisciplinary theory and research. Specific topics include the importance of purpose and meaning at work, challenges in achieving work-life integration, the impact of technology on work expectations, and organizational change. This course is based on a whole-life, integrative model of wellbeing and draws from research and theory across the social, behavior, and health sciences.

CSPH 5806. Wellbeing and Resiliency for Health Professionals. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
This course will teach health professional students and health professionals self-care strategies that will improve their individual wellbeing and reduce the stress and burnout often experienced in these professions. Improving individual wellbeing will also contribute to greater wellbeing in the teams and systems in which these professionals work.

CSPH 5807. Mindfulness in the Workplace: Pause, Practice, Perform. (; 2 cr. ; Student Option; Every Fall & Spring)
An experiential course designed to teach core mindfulness skills while also exploring specific applications to the workplace setting. Explores key mindfulness traits and how they relate to essential workplace skills, such as resilience, task execution, critical analysis, intra/interpersonal growth, and leadership. The course will explore existing workplace programs and how corporate culture can be a barrier or a catalyst for adoption of mindfulness principles. From the perspective of the workplace and academic literature, students will gain an understanding of how to practically apply evidence-based techniques to help them succeed on the job.

CSPH 5905. Food Matters: Cook Like Your Life Depends On It. (1 cr. ; Student Option; Every Fall & Spring)
This course examines the role of food as it bears on the current acute care approach to health and healing, the predominance of chronic disease and the important role that lifestyle (physical activity, stress, sleep, diet) has on all aspects of well being. For healthcare students and future practitioners, this course will support the development of personal food and cooking skills. This will allow them to serve as models to patients, as well as provide tools, resources and applications to support and guide patients in addressing their own diet and cooking challenges, specifically as they pertain to improving their health outcomes. Provides an in-depth exploration of dietary trends, their risks and benefits in relation to current health concerns such as diabetes, obesity, heart disease, etc. Also examines the impact of the Standard American Diet (?SAD?) on these public and personal health problems linked to diet and lifestyle. Analyzes the components of a food system including how production, distribution and consumption of food are interrelated.

Cultural Stdy/Comparative Lit (CSCL)

CSCL 1001W. Introduction to Cultural Studies: Rhetoric, Power, Desire. (AH,WI,DSJ; 3 cr. ; Student Option; Every Fall & Spring)
Culture is a site of struggle, over meanings, values, history, and reality. This course introduces students to cultural studies as a conceptual, interpretive, and interdisciplinary approach to the role that culture plays in defining reality and to the possibilities for contesting those definitions. Through exploring the rituals and practices of culture that shape our perceptions of the world, often in ways we take for granted, the course seeks to develop a critical understanding of the relationships between individual and society, representation and reality, as well as theory and practice

CSCL 1101W. Literature. (LITR,WI; 3 cr. ; Student Option; Every Fall & Spring)
What is literature? Today the term literature embraces all things printed, from fiction to nonfiction to advertising (yes, even your junk mail), from highbrow to low. This course will take a comparative view of the term literature as well as its ideas, practices, and forms. Given that literature historically has been tied to writing, to print, or to the book, what does it mean to study literature today?in an age when the book (and possibly print itself) may be vanishing?

CSCL 1201V. Honors Course: Cinema. (AH,WI; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the critical study of the visual in modernity, presented through sustained analysis of the cinema and cinematic codes. Emphases on formal film analysis and major film movements and conventions in the international history of cinema. Students develop a vocabulary for formal visual analysis and explore major theories of the cinema. *Students will not receive credit for CSCL 1201V if they have already taken CSCLW, SCMC 1201W, ARTH 1921W, CSCL 1921W, CSCL 1201 or SCMC 1201

CSCL 1201W. Cinema. (AH,WI; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the critical study of the visual in modernity, presented through sustained analysis of the cinema and cinematic codes. Emphases on formal film analysis and major film movements and conventions in the international history of cinema. Students develop a vocabulary for formal visual analysis and explore major theories of the cinema. *Students will not receive credit for CSCL 1201W if they have already taken SCMC 1201W, CSCL 1201V, SCMC 1201V, ARTH 1921W, CSCL 1921W, CSCL 1201 or SCMC 1201

CSCL 1202W. Media: Word, Image, Sound. (AH,WI,TS; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the critical and theoretical study of media and technology from Aristotle to the modern world. The first half of the course emphasizes theoretical readings in dialogue with historical apparatuses (printing press, photography, radio, cinema, television) and various expressive objects (the bible, early film, ethnographic sound recordings). The second half turns to the modern culture industry since World War II, and introduces students to the critical study of mass culture, the concept of ideology, and of the relationship between corporate power and media conglomerates.

CSCL 1301W. Reading Culture: Theory and Practice. (AH,WI; 3 cr. ; Student Option; Every Fall & Spring)
Culture and cultural conflict. Reading cultural theory/texts such as film, literature, music, fashion, commercial art, and built environment.

CSCL 1401W. Reading Literature: Theory and Practice. (LITR,WI; 3 cr. ; Student Option; Every Fall & Spring)
How can we read/understand different ways that literature is meaningful? Emphasizes practice in reading a broad spectrum of world literature, literary theory.

CSCL 1501W. Reading History: Theory and Practice. (HIS,WI; 3 cr. ; Student Option; Every Fall & Spring)
What is history? How can we understand its meanings/uses? Emphasizes practice in reading cultural texts from various historical perspectives.

CSCL 1915. Representation in the Time of Pandemics: Culture and Politics from AIDS to COVID-19.. (; 3 cr. ; A-F only; Periodic Fall)
This course starts from the premise that representation is where culture and politics meet, and it tests the hypothesis that pandemics radically transform representation. There are times in history when it takes a global pandemic to see the world in a different light: these are times when a pandemic makes us understand our place in the world differently. How and why do pandemics change the ways we represent the world and ourselves? Or, do they? To answer these questions, we will examine a great variety of representations of life, culture, and society in the time of pandemics: we will watch films, documentaries, and musicals; we will look at photography, paintings, memes, and other visual arts; we will read novels, poems, diaries, and autobiographies; we will study works of philosophy, essays of cultural criticism, and political commentary from various media sources. We will do all that by focusing on two current and ongoing pandemics?theHIV/AIDS pandemic and the SARS-CoV-2/COVID-19 pandemic. In particular, we will consider the cultural and political responses to the AIDS pandemic in the 1980s and 1990s and to the COVID-19 pandemic in 2020, both in the U.S. and worldwide: we will investigate how these pandemics are linked to systemic oppressions (e.g., racism, misogyny, xenophobia, homophobia, transphobia), how they have transformed the relation between our individual rights and our responsibilities to society, how they have impacted sex and love and friendship, how they have changed the way we think about life and death, how they have enabled new and different forms of sociality, communication, and representation. Ultimately, however, it is not only a matter of representing the world differently: it is also a question of changing it. This is where culture meets politics. The word ?representation,? in fact, means not only cultural or aesthetic representation (e.g., as in the way a film represents an aspect of reality); it also means political representation (e.g., as in the way elected officials represent us in democratic governance). Pandemics radically transform representation in both these senses: they transform both culture and politics. In the end, thus, the fundamental question of the course is: how can our representations of the world help bring about the change we want in the world?

CSCL 3005. Seminar in Critical Thought. (3 cr. ; A-F only; Every Fall)
Exploration of concepts and problems foundational to the practice of critique. Focus on paradigmatic concerns and shifts underpinning humanistic inquiry, from the past to the present, such as representation, narrative, ideology, subjectivity, power and violence, and transformation. Groundwork for understanding the European critical tradition and key challenges from non-European sources.

CSCL 3111W. Close Reading. (LITR,WI; 3 cr. ; Student Option; Every Fall & Spring)
History/theory of 'close reading' (i.e., the most intense encounter between reader and text) exemplified through critical texts. Students perform close readings of various texts.

CSCL 3117. Concepts of Literary Study. (LITR; 3 cr. ; Student Option; Every Fall & Spring)
This course begins by asking what this strange thing we call literature is, this six-thousand year old form of writing that brings into existence, each time a work is read, a world that did not previously exist. Sometimes that world is one in which we long to live, sometimes it is dark and foreboding, all death and despair; sometimes we seek it out as an escape from our daily lives, sometimes we enter it to be able to better understand those same lives, to come back to them refreshed, not just emotionally but intellectually -- for if literature does involve an immersion in the not-actually-existent, a departure from the everyday world, it does so by engaging us from within the world and in such a way that it is able to recast our everyday world and make us think it in new ways. And literature does all this with that most everyday of things, language. By attending to the ways authors and scholars mobilise language?s expressive, analytic and conceptual resources, with this course we shall learn various methods of critically appreciating and engaging complex literature, while gaining insight into how the practices of literary criticism and theory relate to, and help us understand, the world in which we live, how language shapes and forms that world and literature?s unique place and role in that world and its forming.

CSCL 3120. Poetry as Cultural Critique. (; 3 cr. ; Student Option; Periodic Spring)
Examines the status of "poetry" in several cultures of the Americas bringing together

techniques of close reading and broad cultural inquiry.

CSCL 3122. Reading Literary Movements. (LITR; 3 cr. ; Student Option; Every Fall & Spring)
Literary movements that emerge when group of writers puts forth new definition of literature. Literary movements created by scholars after the fact. Focuses on one or two related movements (e.g., surrealism, dadaism).

CSCL 3123. Jewish Writers and Rebels in German, Austrian, and American Culture. (; 3 cr. ; Student Option; Periodic Fall)
Literary/cultural modes of writing used by Jewish writers in Germany, Austria, and America to deal with problems of identity, anti-Semitism, and assimilation. Focus on 20th century. All readings (novels, poetry, stories) in English. prereq: No knowledge of German required; Extra work in German must be done in order to count this course toward a German minor or a German, Scandinavian, Dutch major.

CSCL 3130W. Colonial and Postcolonial Literatures and Theory: 1700 to the Present. (GP,WI,LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Readings in colonial/postcolonial literatures/ theory from at least two world regions: Africa, the Americas, the Arab world, Asia, Europe, and the Pacific. Cultural/psychological dynamics and political economy of world under empire, decolonization, pre- vs. post-coloniality, globalization.

CSCL 3141. Classics of World Literature. (LITR; 3 cr. ; A-F only; Every Fall)
This will be an introduction to the concept of world literature ? that is, literature from the Arab, Asian, African, Latin American and Oceanic worlds, not only the English-speaking countries of England and its former colonies. And it will introduce students to some of the basic methods of comparative literary study such as close reading, genre analysis, etymology, stylistics, and translation. We will discuss classic problems confronted within comparative literature such as collective authorship, the spirit of a people, the historical reconstruction of the past through the study of language, comparative cultural value, and the effects on language and learning prompted by technology (in the form, for example, of the ?digital humanities?). We will ask how comparative literature differs from other forms of literary study, but most of all concentrate on the low-tech (but not anti-technological) reading of literary texts ? the student alone with a book in their hand -- while mastering as one?s own a handful of the enduring classics of world literature ? books that have influenced many generations of thinkers and writers but that, oddly, are not typically covered in any college curriculum: not in English classes, humanities introductions, or general knowledge courses. Our focus will be on books that happen both to be central to Western and world culture as part of the inheritance of its educated citizens, but also that happen to be lost at the same time, known about rather than known, invoked but not studied, quoted from but not generally understood. We will be addressing books, in other words, that deeply inspired, but also shaped the thinking of many of the scientists, artists, and scholars of the past, and which were once common knowledge ? the expected points of departure for all educated men and women. In our own day, their influence has hardly waned ? although not in their original form. Modern film and television industries, for instance, rely heavily on their stories, even as philosophers and theologians cannot express themselves without drawing on their characters, languages, and plots. Even the basic elements of advertising would be unthinkable without being able to draw on their repertoire of common stories, mythological settings, and cast of heroes. In an age of radical departures and brave new worlds, we are interested here in invaluable traditions, which have not lost their relevance.

CSCL 3210. Cinema and Ideology. (AH; 4 cr. ; Student Option; Every Fall & Spring)
The cinema as a social institution with emphasis on the complex relations it maintains with the ideological practices that define both the form and the content of its products. Specific films used to study how mass culture contributes to the process of shaping beliefs and identities of citizens.

CSCL 3211. Global & Transnational Cinemas. (GP; 4 cr. ; Student Option; Every Fall & Spring)
This course explores Global and Transnational Cinemas as alternative traditions to the dominant Hollywood-centered accounts of film history. Students will grapple with the historical, social, and political motivations of cinematic projects that critique traditions of national cinema, or that resist the hegemonic force of neocolonial cultural centers. Italian Neo-realism and the French New Wave will be examined as movements that challenge politics and mass culture. Third Cinema in Latin America and pan-African cinematic movements will be examined through their struggles with both colonialism and the rise of post-colonial dictatorships. Indian and Japanese cinemas of the 50s & 60s will mark out new possibilities of filmmaking and distribution. Finally, counter-hegemonic and experimental movements in U.S.-based film, such as the L.A. Rebellion and Fluxus, will allow students to understand how opposition to Hollywood style could exist within the very centers of cultural power while also reaching out to larger global communities.

CSCL 3212W. Documentary Cinema: History and Politics. (AH,WI,CIV; 4 cr. ; Student Option; Periodic Fall & Spring)
This course explores the ethics and aesthetics of documentary cinema, arguably the very first genre of film. We will track the way documentary has widened from largely instructional and experimental uses early in its history to become a distinct genre among today?s familiar feature films. We will screen early documentaries, which may include shocking ethnographies (Nanook of the North, The Mad Masters). Over the course of the term, the syllabus makes its way to recent exemplars of the genre (films may include: Amy, American Teen, I Am Not Your Negro, A Jihad for Love, Generation Wealth, Fetish, Blackfish and so on). One of our aims will be to explore students? relations as viewers and documentarians themselves (via smartphones, Instagram, etc.) to this participatory, revelatory, and always controversial, politically fraught film practice. Documentary Cinema includes both full class lectures and discussions as well as small group discussion of films and readings, and may include the opportunity for students to create their own personal documentary. Intellectually, the course balances out a study of the grammar of documentary as an artistic practice with explorations of the ways the genre reflects broader currents of cinematic and cultural history. By the end of the semester, students should have a stronger understanding of the ways documentary cinema opens our senses to the world around us.

CSCL 3220W. Screen Cultures. (AH,WI,TS; 3 cr. ; Student Option; Every Spring)
Screens increasingly define the ways that we communicate with one another and how we encounter the world. This course will offer a critical, historical approach to the emergence of ?screen cultures? from the beginning of photography and cinema to our own age of ubiquitous touch screen displays. We will pay a great deal of attention to the ways that such technologies drive our patterns of consumption and production as well as how they create and define our social environments.

CSCL 3221. On Television. (CIV; 3 cr. ; Student Option; Every Fall & Spring)
We will study writings on television and specific TV shows from a variety of angles to understand the rise of American broadcast technologies, how race and class are crafted on TV, representations of gender and the home, postmodernity and late capitalism, the rise and demise and of taste, global television and the public sphere, the production of ?reality? in our present historical moment, and changes in televisual technologies. Throughout the course, we will also consider what constitutes television?the technology, the form, and the content?and learn to read these three facets of it concurrently.

CSCL 3231. Comedy: Media, Politics & Society. (AH; 3 cr. ; Student Option; Every Fall & Spring)
What makes some jokes so funny? And why do we laugh? In this course, we will approach the topic of comedy from every angle. We will study theories and philosophies of humor, and will survey many different forms of the genre?film, television, viral web videos, internet memes, stand-up, improv, sketch comedy, absurdist theater, and political satire. And, of course, we will write and perform our own comedy in the classroom. By studying the history and formations of comedy, we will think about how jokes can help us change the rules of everyday life and imagine a new way forward.

CSCL 3251. Popular Music and Mass Culture. (AH; 3 cr. ; Student Option; Every Fall & Spring)
This course investigates the ways popular music is imbricated with the our identities,

social affiliations and attitudes towards others on the scale of millions of people?what we might call ?mass culture.? We will explore how popular music produces emotion, a sense of intoxication, and erotic desire; how it can be linked with self-discipline, bodily exercise, state security, sovereign authority, patriotism, courage, punishment, and violence; and how music might be heard related to labor and work, consumerism and consumption, and capitalism more broadly. We will puzzle over the ways music can give coherence to a cultural group, accompany moral education and action, challenge or reinforce gender conventions, mobilize and disperse political resistance, or lead one into a trance of spiritual and religious ecstasy. While we will still attend to a variety of ?purely? musical elements both large and small (chords, verses, choruses, singing styles, lyrics, etc.), our central focus will be on forming a more philosophical view of its functions within popular culture. Genres to be discussed include rock, pop, hip-hop, R&B, electronic dance music, performances of the national anthem, and experimental music.

CSCL 3281. European Intellectual History: The Early Modern Period, Antiquity to 1750. (3 cr. ; Student Option; Periodic Fall)
First of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/ scientific thought, its relation to thinking about the individual and the community. Readings from original sources.

CSCL 3282. European Intellectual History: The Modern Period, 1750-Present. (3 cr. ; Student Option; Spring Even Year)
Second of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/ scientific thought, its relation to thinking about the individual and the community. Readings are from original sources.

CSCL 3310W. The Rhetoric of Everyday Life. (CIV,WI; 3 cr. ; Student Option; Every Fall & Spring)
How discourse reproduces consciousness and persuades us to accept that consciousness and the power supporting it. Literary language, advertising, electronic media; film, visual and musical arts, built environment, and performance. Techniques for analyzing language, material culture, and performance. (previously 3173W)

CSCL 3322. Visions of Nature: The Natural World and Political Thought. (ENV; 3 cr. ; Student Option; Every Spring)
Scientific and cultural theory concerning the organization of nature, human nature, and their significance for development of ethics, religion, political/economic philosophy, civics, and environmentalism in Western/other civilizations.

CSCL 3323. Science and Culture. (AH; 3 cr. ; Student Option; Every Spring)
Science and technology engaged through historical and cultural manifestations from film, literature, and YouTube to scientific and philosophical essays. Relations among humanities, science, economics, politics, philosophy and history. Psychiatry and drugs, food and agriculture, sexuality, religion and science, climate change.

CSCL 3334. Monsters, Robots, Cyborgs. (LITR; 3 cr. ; Student Option; Every Fall & Spring)
Historical/critical reading of figures (e.g., uncanny double, monstrous aberration, technological hybrid) in mythology, literature, and film, from classical epic to sci-fi, cyberpunk, and Web. (previously 3461)

CSCL 3335. Aliens: Science Fiction to Social Theory. (DSJ; 3 cr. ; Student Option; Every Fall & Spring)
In English, the word ?alien? designates both immigrants from other countries and beings from other worlds. Aliens of all sorts are everywhere; they tend to provoke fascination, fantasy, and for many, fear and anxiety. But the deeper philosophical significance of aliens says as much about us as it does about them. In this course, we will explore these questions through a range of novels, films, and artworks from the 1890s to the present day, with an emphasis on science fiction and American popular culture.

CSCL 3350W. Sexuality and Culture. (DSJ,WI; 3 cr. ; Student Option; Periodic Fall & Spring)
Historical/critical study of forms of modern sexuality (heterosexuality, homosexuality, romance, erotic domination, lynching). How discourses constitute/regulate sexuality. Scientific/scholarly literature, religious documents, fiction, personal narratives, films, advertisements.

CSCL 3351W. The Body and the Politics of Representation. (HIS,WI; 3 cr. ; Student Option; Every Fall & Spring)
Western representation of the human body, 1500 to present. Body's appearance as a site and sight for production of social and cultural difference (race, ethnicity, class, gender). Visual arts, literature, music, medical treatises, courtesy literature, erotica. (previously 3458W)

CSCL 3352W. Queer Aesthetics & Queer Critique. (DSJ,WI,LITR; 3 cr. ; Student Option; Periodic Fall & Spring)
Is there such a thing as global queer aesthetic? If so, how do various modes of representation and expression (novels, poetry, and sophisticated uses of language across film, television and video, digital media, pop music and punk) elaborate and enact queerness in particular material ways while also helping to create a larger, intermedial queer culture?

CSCL 3405. Marx for Today. (AH,DSJ; 3 cr. ; Student Option; Every Spring)
This course provides students with an introduction to Marxist theory, with particular attention to its relevance for the contemporary world. The course will focus on Marx's writings themselves as well as a range of applications and case studies as they relate to gender, race, ethnicity, and social inequality. Among the many topics to be considered include topics like modes of production, labor, profit and surplus value, slavery and race, gender and domestic labor, finance capital and crisis, and environmental sustainability. Students will be required to take two exams, in addition to completing a final paper. It is a discussion-based course, and active participation, close reading, and analytical writing will be expected.

CSCL 3412W. Psychoanalysis. (WI; 3 cr. ; Student Option; Every Fall)
The work of Sigmund Freud has withstood years of controversy to install itself as foundational to the way we understand the relationship between individual desires, social structures, and cultural practices. This is in part because Freud?s writings were not restricted to the domain of psychology. His writings also renewed grand philosophical questions in ways that dramatically transformed them. He asked: What is a human subject? What are the causes of her actions? What are the nature and motivations of her engagement with others? In the many decades since his early publications, Freud?s key concepts like the ego, the superego, the id, the unconscious, and the significance of dreams and jokes have had an enduring influence in Western culture. This course introduces students to a range of psychoanalytic writings from Freud?s early theories of mental structure and human development to contemporary applications, re-workings, and critiques of psychoanalysis. We will discuss concepts like the unconscious, sexuality, disavowal, repression, neurosis, melancholia, the pleasure principle and the death drive. By the end of the course, we will have developed a sense of the uses and limitations of psychoanalysis for understanding pressing global issues such as sexual identification and its formation, racism, neo-fascism, extreme political division, war and nationalism, climate change, and the destruction of democratic ideals. Authors read may include Melanie Klein, Franz Fanon, Jacques Lacan, Julia Kristeva, David Eng, Slavoj Zizek, Henry Stack Sullivan, Kalpana Sheshadri- Crooks and Margaret Mahler. Readings will be complemented with short stories, literary excerpts, film clips, as well as discussion of current political issues.

CSCL 3425W. Theories of Culture. (AH,WI; 3 cr. ; Student Option; Every Fall & Spring)
Examination of three prevalent theoretical perspectives on culture -- philosophical, anthropological, and aesthetic -- as they converge in the work of writers who have contributed to our contemporary conception of cultural diversity.

CSCL 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
CSCL students who would like to pursue paid or unpaid internships can also earn credit toward their degree. This course includes a series of reflective assignments on the internship experience that help students develop their career goals, aspirations, and plans. CSCL students often find internships at media companies, advertising agencies, film festivals, arts institutions and galleries, publishing houses, non-profits, and community organizations. Typically a student?s work is supervised and evaluated by a site coordinator and the instructor works with a student on

readings and assignments. Credits taken are determined by the number of weekly or total hours for onsite internship work, course readings, assignments, and meetings. The following are minimum hours and weekly averages based on a 16 week semester: 1 credit - 45-hour minimum (average 3-4 hours per week) 2 credit - 90-hour minimum (average 5-7 hours per week) 3 credit - 135-hour minimum (average 8-9 hours per week) 4 credit - 180-hour minimum (average 10-12 hours per week) There is also a deferred enrollment section of the course that allows students to take a summer internship followed by fall enrollment for credit. Students interested or registered in this section must contact the instructor at the start of their internship or during registration for more information. Students are also encouraged to apply for CLA Internship and Leadership Scholarships. For more information on this course or internship possibilities, please contact the Film Studies Coordinator (stou0046@umn.edu). Students can also use Goldpass to search for internship possibilities.

CSCL 3993. Directed Study. (1-3 cr. ; Student Option; Every Fall & Spring)
Guided individual reading or study. Prereq-instr consent, dept consent, college consent.

CSCL 4993. Directed Study. (1-3 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Guided individual study.

CSCL 5281. European Intellectual History: The Early Modern Period, Antiquity to 1750. (3 cr. ; Student Option; Periodic Fall)
First of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/ scientific thought, its relation to thinking about the individual and the community. Readings from original sources.

CSCL 5282. European Intellectual History: The Modern Period, 1750-Present. (3 cr. ; A-F or Audit; Periodic Spring)
Second of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/ scientific thought, its relation to thinking about the individual and the community. Readings are from original sources.

CSCL 5302. Aesthetics and the Valuation of Art. (3 cr. ; Student Option; Periodic Fall & Spring)
Society, ideology, and aesthetic value considered in light of recent critical theories of visual art, music, and literature. Meditations of place, social class, gender and ideology on aesthetic judgment in post-Renaissance Western culture.

CSCL 5305. Vision and Visuality: An Intellectual History. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Central role of vision/visuality in modernity. Modern age as scopic regime. Ways that ideas/ ideologies of perception have shaped aesthetic experience within social existence.

CSCL 5331. Discourse of the Novel. (; 3 cr. ; Student Option; Periodic Fall)
Comparative study of the novel, 18th century to present. Its relations to ordinary language practices, emergent reading publics, technologies of cultural dissemination, problems of subjectivity, and its role in articulating international cultural relations.

CSCL 5401. Origins of Cultural Studies. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Intellectual map of the creation of cultural studies as a unique approach to studying social meanings. Key figures and concepts, including nineteenth- and early twentieth century precursors.

CSCL 5411. Avant-Garde Cinema. (; 4 cr. ; A-F or Audit; Every Fall)
In 1939, the art critic Clement Greenberg defined avant-garde art in opposition to the ?kitsch? of mass-produced culture. To what extent does this conception of the avant-garde apply to the cinema?an institution and art form that supposedly requires machines and industrial modes of production? This course introduces students to key works of avant-garde and experimental film made by artists working on the margins of commercial film and mainstream art institutions. From the first half of the twentieth century, we will consider influential films made under the banners of Futurism, Constructivism, Surrealism, and Dada, and discuss their complex relation to Hollywood commodities. In the postwar period, we will explore a range of increasingly global experimental film practices, from the queer underground cinema in Latin America to the use of film projection in avant-garde performance. We will examine these practices in light of larger debates about medium specificity as well as the aesthetics and politics of the personal vs. the structural. In the final unit, we will reflect on the way contemporary artists, scholars, and curators have assembled a tradition of avant-garde cinema in the age of new media, and contemplate new directions we want it to take.

CSCL 5555. Introduction to Semiotics. (; 3 cr. ; Student Option; Periodic Spring)
Problems of the nature of the sign; sign function; sign production; signifying systems as articulated in philosophy, linguistics, anthropology, psychoanalysis, and art theory. Application of semiotics to various signifying practices (literature, cinema, daily life).

CSCL 5666. Film Music: Theory, History, Practice. (4 cr. ; A-F only; Periodic Fall & Spring)
Role of music in American/European film from early 20th century silent cinema to near present. Narrative features, shorts, documentary, horror, thriller, science fiction, comedy, cartoon. Film music as social/cultural practice and as part of political economy within culture industry.

CSCL 5833. Marx, Freud, Nietzsche: Intellectual Foundations. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Three thinkers who defined modernity: Marx, Freud, and Nietzsche. Central tenets of their thought/terms associated with their theories. Their careers portrayed against the background of their times; their place in intellectual history.

CSCL 5910. Topics in Cultural Studies and Comparative Literature. (; 3 cr. [max 32 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

CSCL 5993. Directed Study. (1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq-instr consent, dept consent, college consent.

Curriculum and Instruction (CI)

CI 1001. Introduction to the Elementary School. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Three modules focus on important aspects of contemporary urban elementary school teaching: the principal's role, the teacher's role, and the students. Central to each module are school-based visits, observations, and interviews.

CI 1032. Creating Identities: Learning In and Through the Arts. (AH; 4 cr. ; Student Option; Every Fall & Spring)
?Creating Identities: Learning In and Through the Arts? gives you opportunities to create art in different mediums including storytelling, photomontage, movement, as well as a creative medium of your choice in order to reflect your understanding of a social justice issue. In CI 1032 you join a learning community for discussing, analyzing, and making meaning of this artistic production. No prior experience is needed; come with an open mind and imagination as well as a willingness to experiment. An important emphasis in the class will be on finding your own ways to transform ordinary materials. We will introduce you to specific artistic techniques and in turn you will learn to take creative risks, think metaphorically, explore the unknown, improvise, brainstorm, and invent your own methods of working. Each of you bring to the class different kinds of knowledge and abilities. To be successful in this course you need to be willing to work hard, to explore territory that may not be familiar to you, to be reflective about what you are doing, and to learn from your diverse classmates and in turn help them achieve the same goals. The instructors of ?Creating Identities: Learning In and Through the Arts? shape the course with the assumption that identity is at the heart of educational experiences and that the habits of mind associated with the artistic production are primary vehicles for multimodal learning. We will experience how arts-based learning engenders higher order thinking, the creative process, reflection and perseverance. This course gives you the opportunity to both produce as well as analyze art in order to experience how creative expressions reveal aspects of our personal and social identities that have an impact on how we learn. Through mediums including photography, film, performance, music, painting and sculpture, we will explore how artists are influenced by cultural elements such as the built and natural environments, gender, religion, nationality, and socioeconomic status,

and how artists, in turn, shape our perceptions of culture and identity. Through writing and discussion, we will consider how the arts can both reflect and impact our perceptions of identity and our reflections of ourselves as learners. As you move further into your academic studies and your career, you will intersect with people from differing cultures and places. The work in this class will help you become more comfortable with and welcome the benefits that come with intercultural learning. Interactions with classmates and cultural production of indigenous, immigrant, international and Western artists, allows you to have a greater understanding of, appreciation for and acceptance of the ways of knowing a variety of cultures can provide, and the confidence that you can reciprocate in kind.

CI 1121. Educational Movements Past and Present: Multicultural Perspectives. (DSJ,HIS; 4 cr. ; Student Option; Every Fall & Spring)
Students will explore diverse historical perspectives regarding educational movements in the U.S. since the Civil War. Through challenging questions and problems in educational history, students will develop critical frameworks necessary for interpreting America?s educational past and how it is tied to culture, politics, privilege, and power.

CI 1124. Global Stories of Education: Literature for Young Adults. (GP,LITR; 3 cr. ; Student Option; Every Fall & Summer)
Using young adult novels, short stories, nonfiction, and poems by immigrant, indigenous, minority, and refugee authors, students explore learning experiences of youth. Through immersion in the global lives and identities of characters who cross geographic and cultural borders, students consider what stories teach and how young people learn.

CI 1150. Special Topics History. (GP,HIS; 4 cr. ; Student Option; Every Fall & Spring)
History topics in education.

CI 1512. Nature in the City. (BIOL,ENV; 4 cr. ; Student Option; Every Fall & Summer)
Science and conservation of biodiversity in the Twin Cities. Ecology and evolution of species and communities adapted to urban environments. Socially responsible and culturally sensitive interventions to environmental problems.

CI 1563. Physics by Inquiry. (PHYS; 4 cr. ; Student Option; Every Fall & Spring)
Laboratory-based introductory class where students learn by experimenting and model building and testing. Topics include electric circuits, light and color, and observational astronomy. Emphases include the nature of science and science learning, effective strategies for team-based learning, and logical reasoning skills.

CI 1806. College Algebra through Modeling. (MATH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Math modeling, including linear, polynomial, rational, exponential, logarithmic functions, counting/probability. Excel or calculators used to develop equations/graphs from theoretical/real interdisciplinary data. Projects enable students to use models to examine trends, make predictions. prereq: Three yrs high school math or grade of at least C+ in PsTL 0731 or PsTL 0732 or CI 0832 or placement test score or instr consent

CI 1826. Social Change, Social Justice: An Introduction to Applied Calculus. (MATH; 3 cr. ; Student Option; Every Fall & Spring)
This class is an introduction to differential calculus: instantaneous rates of change, derivative graphs and formulas, multivariate scenarios, partial derivatives and integration. Applications focus on analyzing change in social science scenarios such as gentrification and racial disparities in housing using authentic Minnesota data. Prerequisites: four years high school math OR grade of at least B+ in CI 0832 or PSTL 0732 OR placement test score OR instructor consent.

CI 1871. Computer Literacy and Problem Solving. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Competencies in computer applications used in the social sciences and business to solve problems. Using advanced word processing techniques to create complex documents, electronic spreadsheets to analyze data and present it graphically, database management programs to store, organize, and query data, and presentation software to communicate ideas.

CI 1908W. Children and Other Talking Animals: Animal Tales in (Mostly) Children's Literature. (CIV,WI; 3 cr. ; Student Option; Every Fall)
Humans and animals coexisted for millennia until humanity exiled itself from nature in order to rule it. In this course we look at the tradition of animal tales as the never-entirely-suppressed memory of this kinship and a hope for our future. We explore how animal tales have been used through the ages to reflect diverse ethical conceptualizations of the human relationship with animals and the natural world. We study the connections between children and/as talking animals. We read a range of animal tales and consider their meanings for the environmentally threatened global world.

CI 2311W. Introduction to Technology and Ethics in Society. (CIV,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Values and ethical issues related to technology use in education, workplace, and family/community life.

CI 2312. Sex, Drugs, and the Internet: Educational Perspectives. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Immersive exploration/critique of advantages/risks associated with society's pervasive use of the Internet. Dangers and strategies to combat them. The Internet's potential for teaching/learning.

CI 3001. Engaged Arts Learning in Elementary Classrooms. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduction to pictorial expression, design, and the function of art in the social environment.

CI 3101. Issues in Urban Education. (3 cr. ; Student Option; Every Fall & Spring)
Issues in urban education examines and critiques contemporary commentary on urban education through texts, social media, case studies, and service-learning in schools. Through examination of socio-cultural and socio-political contexts of urban education, this course considers the role of teachers, curriculum, and community in urban schooling.

CI 3211. Introduction to Elementary Teaching. (; 3 cr. ; A-F only; Every Fall & Spring)
Classroom management, instructional planning, working with families in elementary classroom. Assigned readings, lectures, classroom activities, assignments. prereq: [Elementary ed or early childhood ed foundations major], concurrent practicum experience

CI 3212. Practicum: Elementary Teaching. (; 2 cr. ; S-N only; Every Fall & Spring)
Field-based practicum. Students apply learning from their University courses to elementary school setting, connecting theory, research, and practice. prereq: concurrent registration is required (or allowed) in 5111, [elementary education foundations or early childhood foundations] major

CI 3283. Practicum: Special Education K-6. (; 2 cr. ; S-N only; Every Fall & Spring)
Field-based practicum. Students apply learning from their university course in elementary school setting, linking theory, research, and practice. prereq: concurrent registration is required (or allowed) in EDPSY 5613, concurrent registration is required (or allowed) in EDPSY 5616, elementary education: foundations major

CI 3342. Social Media & Connected Learning. (; 3 cr. ; A-F only; Every Fall & Spring)
This course investigates current and potential future impacts of social media using connected learning (Ito) and participatory culture (Jenkins) as a theoretical lens to understand the ways in which it can be used for education. Connected learning focuses on learning "pathways" that move across formal and informal settings to transform the very nature of learning - what it means, how it occurs, and where it takes place. In addition to gaining a philosophical understanding of participatory practices in spaces of connected learning, students will develop conceptual and practical expertise in using social media applications and social networking platforms for learning, creative expression, forming connections, and interacting as global citizens. The overarching aim of this course is to help students become critical consumers and ethical producers of new media in various forms for learning purposes. A balanced analysis and critique of both the affordances and the challenges associated with social media use as a tool for learning will be an essential component of the course and will frame each social media application and network that is explored and authentically integrated into the course. An examination of social media practices and influences will

include their use in both formal education as well as informal learning contexts.

CI 3401W. Diversity in Children's Literature. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Classic/contemporary books for children in all genres, created by authors/illustrators. Research in transactional theory. Cultural authenticity. Reading, discussion, group activities, interactive lectures, projects.

CI 3421W. Writing on Education: Pivotal Experiences of Teaching and Learning. (WI; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Reflection and narrative play important roles in developing deep understanding of teaching and learning. In this course students will read and write texts about critical moments of education, and through this work develop reflective, analytic, and writing skills that will enable them to become more thoughtful and effective citizens in the world of education. Whether students hope to become teachers, youth workers, community organizers, curriculum designers or administrators in educational settings, this course invites students to consider how writers represent experiences of teaching and learning and how these reflective narratives can inform our own work and worlds. Students will explore the ways that writers of creative nonfiction use language to examine pivotal experiences of teaching and learning in diverse contexts, and add their own voices to this rich body of work by producing their own texts. Through study of writing, students will develop familiarity with writing choices and practice employing these techniques and processes in their own writing. Students will read personal essays written by writers in the US who reflect on their own experiences and interrogate how aspects of their identities (including race, ethnicity, gender, family history and language) inform pivotal experiences of teaching and learning. Students will compose texts that explore their own experiences within a constellation of formal and informal educational settings and the questions raised and arguments made through these representations. We will use a workshop-based format that supports transformational learning, helping writers see themselves and their worlds in new ways. Course reading will introduce a range of issues raised by experiences in and outside of the classroom.

CI 3610. Linguistics for Teachers. (SOCS; 3 cr. ; A-F only; Every Fall & Spring)
For pre K-6 pre-service teachers. Introduction to linguistics. Linguistic terminology and how to apply methods of linguistic analysis to English, focusing on educational settings and classroom instruction.

CI 3611W. Basics in Teaching English as a Second Language. (WI; 4 cr. ; Student Option No Audit; Every Fall & Spring)
Writing intensive course that combines service learning internship with classroom lectures, discussions, group work, experiential activities. In this course, service learning requires students to act as teachers and professional leaders with students for 30 hours a semester. Prepares students for teaching ESL to adults in community programs. prereq: Have studied another language.

CI 3612. Introduction to Pronunciation and Grammar for ESL Teachers. (4 cr. ; Student Option No Audit; Every Fall & Spring)
Introduces English language analysis with key concepts/theories in English pronunciation system/grammar. Issues within each/explore way ESL textbooks/instructors can advance ESL learners' language proficiency in these areas. prereq: An Introduction to Linguistics course, e.g., CI 3610 or LING 3001

CI 3613. Intercultural Communication and English Language Teaching. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Foundations of international/cross-cultural communication. Increased understanding of personal preferences/experiences in learning languages/using them in international communication. How these skills vary across individuals/contexts.

CI 3901. Exploring the Teaching Profession I. (; 2 cr. ; A-F only; Every Fall)
This course provides an avenue for participation in the College of Education and Human Development for undergraduate students who have identified teaching as a possible career choice and are accepted into the College?s DirecTrack to Teaching program. This course enables students to explore the history and culture of teaching, student learning, community contexts for learning, and sociocultural, historical, and political influences on teaching, learning, and schools. Students will participate in service learning experiences in area schools. They will attend class, make presentations, engage in online and in person analytical and reflective discussions, collaborate with peers and begin their journey towards becoming teachers. prereq: DirecTrack to Teaching program or department consent

CI 3902. Exploring the Teaching Profession II. (; 2 cr. ; A-F only; Every Spring)
Diversity in schools, strategies for increasing cultural competence. Parents, communities, professional development. Students reflect on themselves as future teachers and complete 50 hours in educational settings. prereq: CI 3901, admission to DirecTrack to Teaching or department consent

CI 3993. Directed Study: Curriculum and Instruction. (1-6 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
Opportunity for students to pursue study not available through regular coursework. This is a student-initiated project created in consultation with a faculty monitor. In consultation with instructor, the student determines topic, sets goals, and develops a proposed project or plan for completing the course. Prereq instr consent.

CI 4121. Culture Power and Education. (3 cr. ; A-F only; Every Fall & Spring)
Manifestations of culture/power in education. How culture is mediating factor in educational achievement of students of color. Relationship between home/community, school cultures. Theories/research that show importance of integrating students' interests, knowledge, experience for increasing student engagement/ achievement.

CI 4122. Social Class Education and Pedagogy. (3 cr. ; A-F only; Every Fall & Spring)
Social, psychological, economic, political aspects of social class/poverty. Implications for education as social institution/classroom pedagogy. Social class in U.S., working-class literature for adults/children, labor histories, economic systems.

CI 4311W. Technology and Ethics in Society. (CIV,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Critique of values and ethical issues related to technology use in education, the workplace, and family and community life.

CI 4312. Sex, Drugs, and the Internet: Educational Perspectives. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Immersive exploration/critique of advantages/ risks associated with society's pervasive use of the Internet. Dangers and strategies to combat them. The Internet's potential for teaching/ learning.

CI 4602. English Learners and Academic Language. (1 cr. ; A-F only; Every Spring)
The course prepares teacher candidates to work effectively with English Learners (ELs) and other linguistically diverse students in their subject areas of music and agricultural education and to develop their students' academic language proficiency as needed for school success.

CI 5008. Theory and Practice of Arts Teaching. (; 1-2 cr. [max 3 cr.] ; A-F or Audit; Every Fall & Spring)
Designed for students pursuing visual or performing arts education licensure, the course explores: 1) Arts concepts, skills, and processes appropriate for elementary school; 2) methods of teaching arts for social justice; and 3) an overview of children?s production of and responses to visual and performing art.

CI 5018. Teaching Dance. (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Teaching Dance considers the theoretical and curricular applications of dance pedagogy and assessment in PK?12 dance learning contexts. Students will connect theory to practice by developing curriculum and instructional material from the field of dance education and professional teaching standards in dance education. prereq: Education graduate student or instructor consent

CI 5049. Digital Media & Technology Integration: Arts Education Theory & Practice. (; 3 cr. ; A-F or Audit; Every Summer)
This course explores issues in the visual and performing arts regarding the current and potential use of technology and digital media in P-12 arts classrooms. Through readings, discussions, artistic production, academic writing, and collaboration, you will understand the use and integration of technology in P-12

arts classrooms as pedagogical tools; the function of scaffolding students? use of digital media as part of 21st century arts teaching and learning; various technological supports for student learning and artistic production; specific digital media theories, pedagogies, and content knowledge; the use of technology in designing, sharing, and conducting lessons; issues concerning the assessment and exhibition of student works; and practical issues of using technology for teaching in and through the arts.

CI 5050. Issues in Art Education. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall & Summer)
Issues/trends, current practices, recent research.

CI 5065. Improving Arts Programs in the Schools. (; 3 cr. ; A-F or Audit; Every Fall)
This course provides students with an exploration of issues in visual and performing art instruction, including teaching methods and evaluation, philosophical frameworks of pedagogy, and institutional issues concerning arts programs in middle and high schools; social and cultural structures of schooling, practical issues, and teaching arts.

CI 5069. Curriculum Innovations in Arts Education. (; 3 cr. ; A-F or Audit; Every Fall)
This course provides students with an examination of traditions in American schooling related to visual and performing arts education curricula.

CI 5075. The Social, Historical and Cultural Foundations of Arts Education. (; 3 cr. ; A-F or Audit; Periodic Fall)
The Social, Historical and Cultural Foundations of Arts Education will examine the arts in public education since the 1800s.

CI 5078. Application of Aesthetic Theory in Education. (; 2 cr. ; A-F or Audit; Every Spring & Summer)
The course explores: ?contemporary theories of arts ?psychological and philosophical foundations ?an overview of children's production of and responses to visual and performing arts

CI 5096. Arts Education Practicum. (; 1-6 cr. ; A-F or Audit; Every Fall)
In this course, students complete practicum observations in designated K-12 visual art or performing art, special education, and kindergarten classrooms.

CI 5097. Student Teaching in Arts Education. (; 8 cr. ; S-N or Audit; Every Spring & Summer)
Teacher candidates spend 16 weeks student teaching in visual art, dance, or theatre. Eight weeks occur in an elementary setting and eight weeks occur in a secondary setting including, but not limited to, middle school.

CI 5102. Culture, Schools, & Communities: Human Relations I. (3 cr. ; A-F only; Every Summer)
This course provides teacher candidates with the knowledge and skills to address social and cultural dimensions of education. Students explore a wide range of challenges and dilemmas facing contemporary educators in the U.S. and in other global locations. They examine original research and theory from the social sciences, and learn how research and theories have informed various educational policies and actual approaches to teaching. The course begins with a focused study of how U.S. educational history has been shaped by competing norms and purposes. It then moves into the role of philosophy in defining those purposes, and shaping actual approaches to teaching. The course then shifts to examine multiple dimensions of humanity including race, culture, gender, gender orientation, class, worldview, perception, and language in and out of school. These concepts lay the foundation for study of cultural transmission and acquisition, the learning preferences of diverse students, and ultimately, culturally relevant pedagogy, cultural competence, and cultural intelligence. Throughout the course, teacher candidates will consider their own positionality and what that means for their practice. Learning experiences are made up of class meetings involving speakers, simulations, and multi-media presentations; readings; small group discussions, activities, exercises and projects.

CI 5103. Culture, Schools, & Communities: Human Relations II. (1 cr. ; S-N only; Every Fall)
This course provides teacher candidates with the knowledge and skills to address social and cultural dimensions of education. The course then explores community partnerships that support student learning, and how teachers may navigate the social and political environment of schools and school districts to be effective advocates for their students. The course examines three themes that are interwoven throughout: professionalism, teacher leadership, and adaptive expertise. In sum, the course encourages teacher candidates to imagine both the realities and possibilities of schooling in the contemporary world. Learning experiences are made up of class meetings involving speakers, simulations, and multi?media presentations; readings; small group discussions, activities, exercises and projects. Prerequisites: Enrolled in initial teacher licensure program and successful completion of CI 5102.

CI 5105. Increasing Access and Success in Undergraduate Classrooms. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Fundamentals and best practices for promoting student access, persistence, and retention within classroom. Focuses on traditionally under-represented/-served populations.

CI 5106. Multicultural Teaching and Learning in Diverse College Contexts. (; 3 cr. ; A-F only; Every Fall)
Theory/pedagogy for culturally responsive teaching from perspectives of teachers/learners in postsecondary settings. Critical multicultural education, universal instructional design, integrated multicultural instructional design.

CI 5111. Introduction to Elementary School Teaching. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Curriculum organization, instruction, management, assessment, professional decision making. prereq: Foundations of ed major or elem ed initial lic

CI 5116. Action Research in Educational Settings. (; 3 cr. ; A-F or Audit; Every Spring)
Action research as method of improving teaching/learning in educational settings. Experience doing research in classrooms. Relative strengths/challenges of different approaches to classroom research. Ethical issues.

CI 5121. Culture Power and Education. (3 cr. ; A-F only; Every Fall & Spring)
In this course we will explore the manifestations of culture and power in education. We will examine the ways in which culture is a mediating factor in the educational achievement of underrepresented students. We will explicate the relationship between home/community and school cultures; and illuminate the detrimental impact of subtractive schooling practices. We then explore the theories and research that have shown the importance of integrating students' interests, knowledges, and experiences-cultures-for increasing student engagement and achievement. Our examination of culturally relevant pedagogy we will move beyond an understanding of "culture" within education as the "celebration" of ethnic food, songs and customs. Instead, we shift toward a more complex understanding of "culture" that takes into account the influences of ethnic culture, youth culture, and popular culture.

CI 5122. Social Class, Education and Pedagogy. (3 cr. ; A-F only; Every Fall & Spring)
This course will immerse students in social, psychological, economic, and political aspects of social class and poverty, and the implications for education as a social institution and classroom pedagogy. Students will engage in inquiries around social class in the U.S.; working-class literature for adults and children; labor histories; and economic systems' and will learn to design social class-sensitive teaching practices guided by five principles for social class-sensitive change.

CI 5145. Critical Pedagogy. (; 3 cr. ; A-F or Audit; Every Spring)
Examination of critical pedagogy; critique of power relations regarding race, culture, class, gender, and age in various educational settings; consideration of improved practice in education for children, youth, and adults.

CI 5150. Curriculum Topics. (; 1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Special topics, current trends in curriculum. Subject integration, curriculum contexts, development, implementation, evaluation.

CI 5155. Contemporary Approaches to Curriculum: Instruction and Assessment. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Current research/issues that cross disciplinary boundaries in curriculum development, instructional practices, and assessment

methods. Interrelations among curriculum, instruction, and assessment within framework of constructivist learning theory. Individual classroom practices/theories. prereq: Grad students only

CI 5156. Popular Culture, Teaching, and Learning. (; 3 cr. ; A-F only; Every Fall)
Approaches to the study of popular culture and education. Intersection between everyday life and broader historical contexts. Sporting events, toys, clothing, shopping malls, vampire mania, music festivals, video, and comics are the kinds of popular forms of culture we will engage as we develop teaching/learning strategies. prereq: Grad student or sr in a program that values teaching as a component of the discipline

CI 5163. Child and Adolescent Development for Teaching and Learning I. (1 cr. ; A-F only; Every Fall & Summer)
Attending to constant transitions/development in which children and adolescents negotiate their road to adulthood. How to foster learning/ positive development. prereq: Enrolled in teacher initial licensure program

CI 5164. Child and Adolescent Development for Teaching and Learning II. (2 cr. ; A-F only; Every Fall & Spring)
Transitions/development in which children/ adolescents negotiate road to adulthood. How to foster learning/positive development. prereq: Enrolled in teacher initial licensure program

CI 5177. Practical Research. (; 1-3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Preparation for identifying a research and development topic, reviewing the existing knowledge on the topic, planning and carrying out a project, further investigating the topic, and writing a report on the project. prereq: CI MEd student, or CI or EdPA Teacher Leadership MEd student

CI 5186. School-Related Projects. (; 1-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Research or evaluation project related to teaching, curriculum, or other aspect of schooling. Approved and supervised by faculty advisor. prereq: MEd student

CI 5187. Practicum: Improvement of Teaching in Elementary or PreKindergarten Schools. (; 2-3 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Elementary school classroom teaching project designed to improve specific teaching skills. Approved and directed by adviser. prereq: Students in early childhood educ M Ed, or elem educ M Ed, or teaching M Ed

CI 5190. Directed Individual Study in Curriculum and Instruction. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Producing/evaluating curriculum materials. Literature review of issues/problems. Assessing curriculum processes. prereq: Grad student, instr consent

CI 5211. Elementary Education Content and Pedagogy I. (4 cr. ; A-F only; Every Fall, Spring & Summer)
Teacher Candidates will complete eight modules on elementary content/pedagogy instruction across disciplines. Introduce various concepts/practices that will be spiraled in each subject area.

CI 5212. Elementary Education Content and Pedagogy II. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Teacher Candidates will complete five modules on elementary content/pedagogy instruction across disciplines. Builds on various concepts/ practices from introductory course. Introduces content that will be spiraled in each subject area.

CI 5213. Elementary Education Content and Pedagogy III. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Teacher Candidates will complete six modules on elementary content/pedagogy instruction across disciplines. Builds on various concepts/ practices from two previous introductory courses. Introduces content that will be spiraled in each subject area.

CI 5214. Elementary Education Content and Pedagogy IV. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Teacher Candidates will complete five modules on elementary content/pedagogy instruction across disciplines. Builds on various concepts/ practices from previous three courses. Introduces content that will be spiraled in each subject area.

CI 5215. Elementary Education Content and Pedagogy V. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Teacher Candidates will complete five modules on elementary content/pedagogy instruction across disciplines. Builds on various concepts/ practices from introductory courses. Introduces content in each subject area. Serves as conclusion to elementary ed content/pedagogy courses.

CI 5254. Kindergarten Methods. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Purpose of kindergarten, its place in elementary program. Curriculum appropriate for needs of age group, including children with special needs. Assessment procedures, role of classroom teacher. prereq: Foundations of Education/Elementary Education or M.Ed./ILP Elementary Education

CI 5283. Practicum: Applying Instructional Methods in the Elementary Classroom. (; 3 cr. [max 6 cr.] ; S-N only; Every Fall & Spring)
Field-based practicum in elementary school setting. In-class discussions about application of classroom learning to school setting. prereq: M.Ed./Elementary education initial licensure student, enrolled in elementary education methods course

CI 5285. Clinical Experience in Elementary School Teaching. (; 12 cr. [max 24 cr.] ; S-N only; Every Fall, Spring & Summer)
Students spend full days in elementary classroom, gradually assuming responsibility for teaching, and prepare portfolio based on criteria given. One seminar per week. prereq: M.Ed./Elementary education initial licensure students

CI 5286. Student Teaching Seminar: Elementary Education. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Weekly seminar supplementing student teaching experience. Class discussions, sharing of artifacts from the classroom, reflections, and readings. prereq: M.Ed./ Elementary education initial licensure only

CI 5287. Capstone Project: Improvement of Teaching in Elementary and Pre-Kindergarten Schools. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Elementary school classroom teaching project to improve specific teaching skills. Approved/ directed by adviser. prereq: M.Ed./elementary education initial licensure student

CI 5300. Teaching Introductory Computer Concepts and Skills. (; 1-3 cr. ; A-F or Audit; Every Spring)
Pedagogical strategies for teaching keyboarding and word processing.

CI 5301. Foundations of Computer Applications for Business and Education. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Instructional uses of computers/representative business, education, marketing applications. Word processing, databases, spreadsheets, graphic design. Expectations are for demonstrations of skills on apps/understanding of concepts that go beyond basic.

CI 5304. Data Management for Online Integration. (; 3 cr. ; Student Option; Every Spring)
Using database software to organize, manage, and display online data, to create content management systems, and to integrate into existing websites.

CI 5305. Integrated Computer Applications in Business and Marketing Education. (; 3 cr. ; Student Option; Every Fall & Spring)
Case-based authentic business computing problems requiring integration of two or more application packages. Pedagogical issues of learning/teaching advanced computer applications.

CI 5307. Technology for Teaching and Learning. (1.5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Diverse educational technology in K-12 classrooms. Effective use of technology. Computer technologies used to stimulate personal productivity/communication and to enhance teaching/learning processes. prereq: [MEd/initial licensure or CLA music ed major or preteaching major or instr consent], basic computer skills

CI 5321. Foundations of Distance Education. (; 3 cr. ; A-F or Audit; Every Summer)
History, philosophies, technologies, and best practices related to distance learning environments. Distance education theories. Issues in distance education.

CI 5323. Online Learning Communities. (; 3 cr. ; A-F or Audit; Every Spring)
Students design/research an online learning environment that promotes community. What community is, how it fosters learning in

educational learning environments. Theories of distance learning instruction. Community models. technological tools to develop online communities.

CI 5325. Designing and Developing Online Distance Learning. (; 3 cr. ; A-F or Audit; Every Fall)
Students research, use, and evaluate technologies for distance learning and design their own learning environments. prereq: 5351 or 5362 recommended

CI 5330. Special Topics in Learning Technologies. (; 3 cr. [max 9 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Topics related to the field of learning technologies.

CI 5331. Introduction to Learning Technologies. (3 cr. ; A-F or Audit; Every Fall)
An exciting look at the field of learning technologies (LT), examining the numerous opportunities this area of study brings to individuals who decide to pursue a LT degree. Students engage in numerous real-world projects as they come to understand both the past and future of technology in education, business, and society as a whole.

CI 5336. Planning for Multimedia Design and Development. (3 cr. ; A-F or Audit; Every Spring)
Theory, research, practice in instructional design. Generic components of instructional design process. Applying principles to design/development of computer-based instructional materials.

CI 5351. Technology Tools for Educators. (3 cr. ; A-F or Audit; Every Fall)
Develop skills in using technology applications to support teaching and learning. Internet applications, presentation software, Web 2.0 technologies, and Web site development.

CI 5361. Teaching and Learning with the Internet. (; 2-3 cr. ; Student Option; Every Spring)
Implications/challenges in using Internet-based technologies in classroom. Pedagogical models.

CI 5362. Foundations of Interactive Design for Web-based Learning. (3 cr. ; A-F or Audit; Every Fall)
Processes of designing/developing interactive learning media and online applications from ground up. Focuses on usability/aesthetics in online learning.

CI 5363. New Media and Interaction Design for Online and Mobile Learning. (3 cr. ; A-F or Audit; Every Fall)
New media design from perspective of instructional designer. Designing with Adobe Flash environment. Context of authentic design problems. Consideration of raster/vector imaging, web video optimization, usability analysis.

CI 5365. Contemporary Software Development Issues and Tools. (3 cr. ; A-F or Audit; Every Summer)
Software used in multimedia design/development. Uses of the software, intricacies of interface, relevant programming principles. Introduction to developing multimedia applications. prereq: Familiar with standard computer/Internet operations

CI 5367. Interactive Multimedia Instruction. (3 cr. ; A-F or Audit; Every Spring)
Principles of effective computer-based design; tools in multimedia development; contemporary issues and skills used in the design, development, and implementation of interactive multimedia instruction. Use multimedia development tools, create a multimedia portfolio, and investigate the issues surrounding their effective use. prereq: Knowledge of principles and procedures of CBI design and one multimedia authoring system

CI 5371. Learning Analytics: Theory and Practice. (; 3 cr. ; Student Option; Every Fall)
Learning analytics as a nascent field is broadly defined as the "measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs." This course aims to provide a general, non-technical survey of learning analytics, as well as its application in various educational contexts. In particular, we will discuss foundations of learning analytics, survey pertinent education theories, discuss new forms of assessment, explore popular data mining techniques, review learning analytical tools and case studies, and de- sign analytics for our own interested contexts. Given the breadth of this field, additional support is provided for deep dives in special interest areas. Overall, this course provides a comprehensive, theory-driven overview of learning analytics to orient students to this nascent field and prepare them for advanced research/practice in learning analytics.

CI 5390. Learning Technologies Field Experiences. (; 2 cr. ; S-N only; Every Fall & Spring)
Field-based experience for students enrolled in computers, keyboarding, and related technology applications methods classes. Apply learning from University courses to the K-12 school setting. In-class discussions about the application of classroom learning to the school setting. prereq: Students in teachers of computers/keyboarding/related technology applications additional licensure program

CI 5392. Learning Technologies M.Ed. Capstone Project. (; 3 cr. ; A-F only; Every Spring)
In this course Learning Technologies M.Ed. students develop their final capstone project that signals the completion of their degree program. Students will identify a need or gap related to Learning Technologies in an area of interest to them and conduct preliminary research on that topic. Based on their research, students develop a proposal and turn the proposal into reality by building the project. Students will participate in a variety of discussions and scholarly readings, both instructor selected and those selected by students in support of their identified topics of research. A mini-cohort model of 2-4 students is used throughout the course for peer review and feedback. Peers become mini-experts in their partners' projects as they follow along in the design and development process and ask questions and offer feedback along with the instructor. Students will develop a completed project or prototype (e.g. course curriculum, training materials, website, software, mobile app, etc.) and a paper defending their project by discussing the research that informed their decisions, how those decisions were implemented, and how they expect the project to impact their work and/or field. The course culminates in a public presentation of their project via live or video conferencing with a Q&A session following. prereq: Learning Technologies M.Ed. students

CI 5402. Introduction to Special Collections. (; 3 cr. ; A-F or Audit; Periodic Fall)
Uses Children's Literature Research Collection as research material. Study of manuscripts, original art, and letters. prereq: Children's lit course

CI 5403. Writing For and By Children. (3 cr. ; A-F only; Every Fall)
Aspects of writing/illustrating children's literature or children's own writing. May feature authors/illustrators of children's books.

CI 5404. Multicultural Literature for Children and Adolescents. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Course explores multicultural literature for children and adolescents as a site where difference can be emphasized and appreciated rather than downplayed and muted. We study award-winning works of fiction and arrive at a definition of multicultural literature for the modern classroom.

CI 5405. Middle School Language Arts Methods. (; 2 cr. ; A-F only; Fall Odd Year)
Introduction to the unique needs of middle school students in the language arts classroom. Language arts content and pedagogical skills. Adolescent development/psychology. Field placement in a middle school language arts classroom. prereq: Elem ed licensure student

CI 5410. Special Topics in the Teaching of Literacy. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall & Summer)
Topics related specifically to the needs of in-service teachers. Topics, location, credits, and duration will be highly flexible.

CI 5413. Foundations of Reading. (3 cr. ; A-F or Audit; Periodic Spring)
Reading processes, development of readers. Assessment and tutoring of individual children in reading and other literacy practices. prereq: CI 3610 and concurrent registration with CI 5414

CI 5414. Practicum: Working With Developing Readers. (2 cr. ; S-N only; Every Fall & Spring)
Field-based practicum. Students apply learning from their University course to working with developing readers. Instructor provides specific assignment. prereq: CI 3610 and concurrent registration with CI 5413 required; elementary education foundations major

CI 5417. Elementary literacy Instruction for ESL Students. (; 3 cr. ; A-F or Audit; Fall Odd Year)
Teaching reading/writing in elementary grades to students from diverse languages. Second-language literacy development. Phonemic awareness, phonics, fluency, vocabulary, comprehension. Ways to connect students? background knowledge to literacy curriculum. prereq: Bachelor's degree completed

CI 5419. The American Middle School. (; 3 cr. ; Student Option; Every Fall & Summer)
Focus on the uniqueness of the early adolescent and appropriate learning situations. For educators working with middle-level students.

CI 5421. Writing on Education: Pivotal Experiences of Teaching and Learning. (4 cr. ; Student Option; Every Fall & Spring)
Reflection and narrative play important roles in developing deep understanding of teaching and learning. In this course students will read and write texts about critical moments of education, and through this work develop reflective, analytic, and writing skills that will enable them to become more thoughtful and effective citizens in the world of education. Whether students hope to become teachers, youth workers, community organizers, curriculum designers or administrators in educational settings, this course invites students to consider how writers represent experiences of teaching and learning and how these reflective narratives can inform our own work and worlds. Students will explore the ways that writers of creative nonfiction use language to examine pivotal experiences of teaching and learning in diverse contexts, and add their own voices to this rich body of work by producing their own texts. Through study of writing, students will develop familiarity with writing choices and practice employing these techniques and processes in their own writing. Students will read personal essays written by writers in the US who reflect on their own experiences and interrogate how aspects of their identities (including race, ethnicity, gender, family history and language) inform pivotal experiences of teaching and learning. Students will compose texts that explore their own experiences within a constellation of formal and informal educational settings and the questions raised and arguments made through these representations. We will use a workshop-based format that supports transformational learning, helping writers see themselves and their worlds in new ways. Course reading will introduce a range of issues raised by experiences in and outside of the classroom.

CI 5422. Teaching Writing in Schools. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Theory/practice of teaching writing in schools. How race, gender, and social class impact teaching/learning.

CI 5425. Reading Instruction in the Elementary Grades. (; 3 cr. ; A-F only; Every Fall & Spring)
Curricular/methodological issues in teaching of reading. Reading/orthographic processes, strategy instruction for word recognition/ comprehension, authentic assessment strategies, and teaching diverse students. prereq: [Elementary or early childhood] licensure student

CI 5426. Language Arts Instruction in the Elementary Grades. (; 3 cr. ; A-F only; Every Fall & Spring)
Curricular/methodological issues of language arts. Oral language development, response to literature, writing processes, authentic assessment strategies. Teaching diverse students. prereq: Elementary or early childhood licensure student

CI 5431. Introduction to Instructional Leadership in K-12 Reading. (; 3 cr. ; A-F or Audit; Every Summer)
K-12 curriculum in reading, major theories/ research that motivate curriculum. Major instructional principles, alignments needed, resources available. prereq: Minnesota license valid for classroom teaching in pre-kindergarten, [adult basic education or grades kindergarten through 6 or 1 through 6 or 5 through 8 or 9 through 12 or kindergarten through 12]

CI 5432. Instructional Leadership in Reading in Kindergarten and the Elementary Grades. (; 3 cr. ; A-F or Audit; Every Fall)
Research-based reading instruction for elementary grades. How to help other teachers improve practice. Characteristics of effective schools within context of improving students. reading achievement. prereq: 5431

CI 5433. Instructional Leadership in Reading for the Middle and Secondary Grades. (; 3 cr. ; A-F or Audit; Every Spring)
Curriculum/instruction for middle/secondary school students. prereq: 5432

CI 5434. Professional Development and Evolving Practice in K-12 Reading. (; 3 cr. ; A-F or Audit; Every Summer)
Developing e-portfolio to assess competence in standards for teaching K-12 reading. Evolving teaching practices. Applications of current technologies. prereq: 5433

CI 5435. Instructional Leadership in Preventing Reading Difficulties. (; 3 cr. ; A-F or Audit; Every Fall)
Research-based reading interventions for struggling readers. How to help other teachers improve their practice. Theory/research behind preventing reading difficulties. Principles/ techniques for assessing reading difficulties and students? progress. prereq: 5434

CI 5441. Teaching Literature in the Secondary School. (; 2-3 cr. ; A-F or Audit; Periodic Fall & Spring)
Current theories. Analyzing literature. Response to literature. Adolescent literature/ reading interests. Devising response activities/ units. Multicultural literature. Relating media and literature. Linking writing to understanding literature. Designing curriculum. Evaluating/ assessing students. Growth in literary response.

CI 5442. Literature for Adolescents. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Characteristics of literature written for adolescents; rationale for using adolescent literature; adolescents' reading interests and attitudes; analysis of quality and appeal; individualized reading programs; methods of promoting reading; multicultural literature; developing teaching activities.

CI 5451. Teaching Reading in Middle and Secondary Grades. (; 3 cr. ; A-F or Audit; Every Fall)
Methods of accommodating to students' abilities and facilitating reading in regular content classes.

CI 5452. Reading in the Content Areas for Initial Licensure Candidates. (; 1-2 cr. ; A-F only; Periodic Fall & Spring)
Web-based course. Fostering students' reading related to learning from text. prereq: Concurrent enrollment in licensure area methods course(s), enrolled in Initial Licensure Program, Internet access, basic understanding of [computer use, Web browsers, email, word processing software]

CI 5461. Teaching Composition in the Secondary School. (3 cr. ; A-F or Audit; Periodic Spring)
Theories of composition instruction. Teaching composing within social contexts. Informal writing. Linking reading/writing. Describing/ evaluating student writing. Using/modeling conference strategies. Computer-mediated software. Grammar and writing. Editing instruction. Writing assessment. Uses of portfolios.

CI 5463. Minnesota Writing Project Annual Invitational Summer Institute. (; 3 cr. ; A-F only; Every Summer)
Workshop. Participants reflect on their own literacy processes, participate in a writing group, discuss current reading texts, and demonstrate best practices in classroom. prereq: Licensed teacher or administrator or [space available, faculty letter of recommendation]

CI 5464. The Politics of Literacy and Race in Schools. (3 cr. ; A-F or Audit; Every Fall)
Literacy and race in schools examined, especially how power plays out, and what are the possibilities for creating radical democratic forms of life. Conceptions of language, literacy, whiteness, and racial identities are explored. Topics include educators? talk and silence about race, Ebonics, and youth?s racial identities in global times.

CI 5465. Writing and Social Justice: A Minnesota Writing Project Open Institute. (3 cr. ; Student Option; Every Summer)
This course focuses on practices within literacy instruction as related to the current educational landscape and a theme of social justice. In this course, participants will focus on three areas: writing, teaching, and learning. Participants will reflect on their own writing processes as they write, share, and participate in a community of writers. Writing groups will meet several times during the course. Participants will also consider the theory and practice of writing instruction that helps students achieve their potential as writers and change agents. In

addition, participants will investigate a literacy issue relevant to the course theme, social justice, and will present it as a research project or lesson. This course is offered for practicing teachers at all levels and across disciplines.

CI 5471. Clinical Experience in Teaching Secondary English. (3 cr. ; A-F only; Every Fall)
Initial licensure candidates in English Education will observe the teaching and learning experience in a school and classroom context; implement approaches, assessments, and philosophies learned about in corresponding methods courses; reflect upon the complexities of classroom life in a seminar format; and co-plan and co-teach a five-day unit. prereq: Must register same semester as CI 5441 and CI 5451.

CI 5472. Teaching Critical Media Analysis in Schools. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
"Critical" media literacy means that we focus on, among other things, analyzing the intersection between media and issues of identity -- like gender, race, class and sexuality. We also focus on how to teach critical media analysis to students and others.

CI 5474. New Literacies Frameworks and Instruction: Digital Texts and Digital Reading. (3 cr. ; A-F only; Every Fall)
Read digital texts against backdrop of traditional print-based notions of reading, literacy, school curricula/instruction. Assists education professionals in making school/ district-wide decisions based on sound research on digital reading/new literacies.

CI 5475. Teaching Digital Writing. (; 3 cr. ; A-F or Audit; Every Fall)
Blogs, wikis, online discussion. Database searches. Integration of images, audio, video, text. Digital note-taking, mapping, storytelling. Online discussions, collaborative writing. Audio production. Formatting/design techniques. Online evaluation. E-portfolios.

CI 5481. Developments in Teaching English and Speech. (; 3 cr. ; A-F or Audit; Every Spring)
Current theories of English/speech curriculum. Teaching oral language. Organizing curriculum. Linking components of English/speech curriculum. Reflecting on pre-student-teaching experience.

CI 5483. Critical Literacy, Storytelling, and Creative Drama. (3 cr. ; Student Option; Every Summer)
This course examines and embodies how storytelling and creative drama can be used as tools to help develop students? critical literacy and to assist them in becoming more fluent readers and writers. Critical literacy is the focus; theater and storytelling are the vehicles. Key topics to be covered include: 1) A historical background on fairy and folk tales, legends, fables, myths, and the different oral traditions; 2) Tools for developing a critical view of diverse tales; 3) Practical instruction on how to use storytelling and story genres in the classroom to develop critical literacy; 4) Assessing storytelling work in the classroom. Students will meet in the first week at the University to learn tools of the Neighborhood Bridges program and in the second week will practice and observe each other?s teaching with local school classrooms. In the past we have worked with 4th graders and 6th graders, though we will also discuss how course content applies to high school students. The class meets for two intensive weeks in person, however, we additionally assign pre-readings and post-class reflections and papers.

CI 5484. Improving Secondary English Language Arts Instruction: Part I. (; 1.5 cr. ; A-F only; Every Fall)
This online course is designed for secondary literacy teachers, including those in communication arts and literature. The purpose of this course is for secondary English Language Arts (ELA) teachers to examine their practice in a collaborative community and to improve teacher effectiveness through ongoing feedback from the instructor and other participants. The course will provide support through small group discussions and peer and instructor response. Key topics to be covered include: 1) frameworks for understanding teacher growth in ELA contexts; 2) developing an ELA classroom ecology; and 3) supporting and assessing student learning in the ELA Common Core Standards. This 1.5-credit course was designed in a sequence with CI 5485: Improving Secondary English Language Arts Instruction: Part II.

CI 5485. Improving Secondary English Language Arts Instruction: Part II. (; 1.5 cr. ; A-F only; Every Spring)
This online course is designed for secondary literacy teachers, including those in communication arts and literature. The purpose of this course is for secondary English Language Arts (ELA) teachers to examine their practice in a collaborative community and to improve teacher effectiveness through ongoing feedback from the instructor and other participants. The course will provide support through small group discussions and peer and instructor response. This 1.5-credit course was designed in a sequence with CI 5484: Improving Secondary English Language Arts Instruction: Part I. This second course in the sequence will focus on teacher-driven professional inquiry that participants began developing in CI 5484. prereq: Successful completion of CI 5484.

CI 5493. Minnesota Writing Project Directed Studies. (1-3 cr. ; A-F only; Every Summer)
Directed study for teachers involved in MWP. Capstone course for those enrolled in the Certificate in Teaching Writing and Critical Literacy. Teachers investigate current theory and practice of literacy instruction. Ongoing cohort for those enrolled in the Certificate. prereq: Teaching license, [CI 5463 or enrolled in the Certificate for Teaching Writing and Critical Literacy] or instructor permission.

CI 5496. Directed Experiences in Teaching English. (4-8 cr. ; S-N or Audit; Every Fall & Spring)
Student teaching/clinical experience for English Education (Comm Arts & Lit) initial licensure and middle level endorsement students. Credits vary depending on length of field experience and should be determined with your academic adviser. prereq: MEd/initial licensure students in English ed only

CI 5502. Science Instruction in the Elementary Grades. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Methods/materials for teaching science/health at elementary school level. prereq: Early Childhood or Elementary Education ILP

CI 5511. Introduction to Secondary Science: Laboratory-based Instruction. (4 cr. ; A-F only; Every Fall, Spring & Summer)
Inquiry about teaching/learning, observing/ analyzing instruction, reflecting on own/each other's science teaching. How to use various instructional techniques/methods.

CI 5512. Secondary Science Methods: Understanding the Nature of Science. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Inquiry about teaching/learning, observing/ analyzing instruction, reflecting on own/each other's science teaching. How to use various instructional techniques/reflect upon teaching. Develops understanding of research-based instructional methods in secondary science classrooms.

CI 5513. Secondary Science Methods: Equity in Science Teaching. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Inquiry about teaching/learning, observing/ analyzing instruction, reflecting on own/each other's science teaching. How to use various instructional techniques/reflect upon teaching. Develops understanding of equitable science teaching practices/safe student-centered classroom culture.

CI 5514. Secondary Science Methods: The Science Learning Environment. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Inquiry about teaching/learning, observing/ analyzing instruction, reflecting on science teaching. How to use various instructional techniques, reflect upon professional growth using evidence from teaching. Identify goals/ instruction plans for professional practice.

CI 5515. Secondary Science Methods: Developing Adaptive Expertise. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Inquiry about teaching/learning, observing/ analyzing instruction, reflecting on science teaching. How to use various instructional techniques, reflect upon professional growth using evidence from teaching. Identify goals/ instruction plans for professional practice.

CI 5530. Secondary Science Methods I. (; 3 cr. ; A-F only; Every Summer)
Lab-based science teaching in secondary school setting. Research-based teaching strategies are modeled that address national-/ state-level standards. How to use various inquiry-based instructional techniques/ methods.

CI 5531. Secondary Science Methods II. (; 3 cr. ; A-F or Audit; Every Fall)
Methods of planning/teaching science to middle school students. prereq: Initial licensure

student in science ed and CI 5530 Secondary Science Methods 1

CI 5532. Secondary Science Methods III. (; 3 cr. ; A-F or Audit; Every Spring)
Methods of planning/teaching science for secondary school students. prereq: Admission to initial licensure program in science and CI 5531 Secondary Science Methods II

CI 5533. Current Developments in Science Teaching. (; 3 cr. ; A-F or Audit; Every Summer)
Using curriculum standards to design science courses. prereq: MEd, initial licensure, grad student, or instr consent

CI 5534. Studies in Science Education. (; 3 cr. ; A-F or Audit; Every Fall)
Improvement of science teaching through the application of research findings. prereq: M.Ed., init lic, or instr consent

CI 5535. Foundations of Science Education. (; 3 cr. ; A-F or Audit; Every Spring)
Analysis of present science teaching practices in light of historical and philosophical foundations of science education. prereq: M.Ed., grad student, or instr consent

CI 5536. Equity, Policy, and Assessment in Science Education. (; 3 cr. ; A-F only; Every Fall)
Nature of equity, diversity, and policy matters that influence schools/teachers involved in science teaching and scientific literacy. Classroom presentations, discussions, readings in current research. prereq: Med, or grad student, or instr consent

CI 5537. Principles of Environmental Education. (; 3 cr. ; A-F or Audit; Every Fall)
Critical review of Environmental Education, its history, theories, curricula, teaching methods, and assessment practices. Development of an exemplary unit plan for teaching environmental studies. prereq: Undergrad in NRES or M.Ed. or grad student in education or instr consent

CI 5538. Action Research in Science Education. (; 3 cr. ; A-F only; Every Spring)
This course is designed to accomplish several main goals for those enrolled: (1) articulate their own understanding of what it means for there to be equity in science education and how their personal interpretation aligns with existing frameworks for viewing equity; (2) become familiar with interactions between equity and educational policies, including standardized testing, school organization, and teacher preparation in Minnesota; (3) design and conduct an investigation around a classroom dilemma pertaining to an issue of equity.

CI 5540. Special Topics: Science Education. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Detailed examination and practice of the teaching of one area of science (e.g. geology, health, physical science) or one method of instruction (e.g. laboratories, demonstrations, Internet, simulations).

CI 5541. Teaching History and Nature of Science. (3 cr. ; A-F or Audit; Every Fall)
Understanding nature of science(NOS). Integrate/reflect on NOS in secondary science classroom. Historical cases/integrating NOS with science content/scientific inquiry. prereq: MEd ILP or professional studies student in science education or instr consent

CI 5551. Reflecting on Science Classroom Practices I. (1.5 cr. ; A-F only; Every Fall)
Students reflect on their instruction and student learning during first years of teaching. Monthly meetings, observations, online discussion. Classroom management, planning, inquiry-based teaching, assessment, equity in the classroom.

CI 5552. Reflecting on Science Classroom Practices II. (1.5 cr. ; A-F only; Every Spring)
Students reflect on their instruction and student learning during first years of teaching. Monthly meetings, observations, online discussion. Classroom management, planning, inquiry-based teaching, assessment, equity in the classroom.

CI 5596. Clinical Experience in Middle School Science. (; 4 cr. ; A-F or Audit; Every Fall)
Supervised clinical experience in middle school science teaching.

CI 5597. Clinical Experience in Secondary School Science Teaching. (; 4-8 cr. ; S-N or Audit; Every Spring)
Supervised clinical experience in secondary school science teaching. prereq: initial licensure or instr consent

CI 5608. CARLA Summer Institute Seminar. (; 1-4 cr. [max 16 cr.] ; Student Option No Audit; Every Summer)
The Center for Advanced Research on Language Acquisition (CARLA) offers a series of intensive summer institutes to provide timely professional development for foreign language and ESL educators throughout the country. The special topics offered under CI 5608 are designed to provide language teachers with the latest research-based information and best practices skill development as the field of language instruction evolves. Each institute is highly interactive and includes discussion, theory-building, hands-on activities, and plenty of networking opportunities with colleagues from around the world.

CI 5611. Principles of Linguistics. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to linguistics for ESL teachers. Linguistic terminology/analysis. Theories/ research about first/other language learning. Analyze educational implications of language use, learning, policy.

CI 5612. ESL Methods for Multilingual Development. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to methods of developing reading, writing, speaking, listening skills among English learners in K-12. Reflect on beliefs/ideas, cultivate orientation towards reflective teaching/ life-long learning.

CI 5613. Testing and Assessment for English Learners. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Develop awareness of/familiarity with policies, procedures, practices in use in attempting to determine academic readiness of students learning English as secondary language in American public schools.

CI 5614. Curriculum and Materials Development for English Learners. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Explore role ESL teachers play in curriculum/ materials development. Historical overview of curriculum development in second language education, factors that influence curriculum development, range of models for curriculum development tailored to English learners.

CI 5615. Academic English for English Learners: Planning, Assessment, Instruction. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Prepares ESL teacher candidates to develop academic English skills of English learners of various proficiencies through bilingual teaching strategies. Prepares students to offer leadership with colleagues from content areas to integrate language/content. Includes focused study of advanced-level syntactic structures/ completion of edTPA.

CI 5617. Academic Language and English Learners I. (; 1 cr. ; A-F only; Every Summer)
Working with English learners and other linguistically diverse students across content areas to develop academic language proficiency. prereq: Enrolled in teacher initial licensure program

CI 5618. Academic Language and English Learners II. (; 1 cr. ; A-F only; Every Spring)
Working with English learners and linguistically diverse students across all content areas to develop academic language proficiency. prereq: Enrolled in teacher initial licensure program

CI 5619. Teaching World Languages and Cultures in Elementary Settings. (; 2 cr. [max 3 cr.] ; Student Option; Every Summer)
Methods/materials for elementary world language instruction; development of oral communication/literacy in world languages; world language program design; global awareness/cross-cultural experience; children's language; children's literature, games, and songs; planning/development of units and lessons.

CI 5620. Introduction to Second Language Acquisition for Language Teachers. (; 3 cr. [max 6 cr.] ; Student Option; Every Summer)
Current research and theory in the area of second language acquisition (SLA). Topics include the similarities and differences across first and second language acquisition; the role of individual differences in language learning (including age, first language, aptitude among others). Implications for sociolinguistic diversity in the United States.

CI 5621. Culture as the Core in the Second Language Classroom. (2 cr. ; Student Option No Audit; Every Summer)
How language teachers foster development of intercultural communicative competence through a pedagogical approach that addresses the nature of culture and culture

learning, and the interrelatedness of language and culture learning.

CI 5622. Exploring Learner Language: Puzzles and Tools for the Classroom. (; 2 cr. ; Student Option No Audit; Every Summer)
The focus of this institute is on the growth and development of learners? language, and how that growth may be enhanced by ongoing pedagogical innovation. The institute uses Exploratory Practice to promote a culture of instructor initiative in identifying and seeking to solve puzzles related to learner language development in the classroom. Participants begin with an introduction to Exploratory Practice as a framework for instructors to use in identifying and wrestling with their own puzzles about learners? language and its development in their classrooms. Participants then work together to reflect on videos of learner language as it is produced by different kinds of learners. They review theories of second language acquisition, and apply their insights to their own classrooms by learning how to set up engaging puzzle-solving activities that stimulate growth in learner language. Finally, participants learn how to design pre- and post-course measures that demonstrate the impact of their innovations in instruction on the growth of specific features and dimensions of learner language in their own classrooms.

CI 5623. Improving Language Learning: A Practical Course in Styles- and Strategies-based Instruction. (; 2 cr. ; Student Option No Audit; Every Summer)
Learner-focused approach to teaching that helps students understand and make the most of their own learning styles/strategies. Participants create materials/lessons and explore ways to incorporate strategies into their own language curricula.

CI 5624. Content-based Language Instruction and Curriculum Development. (; 2 cr. ; Student Option No Audit; Every Summer)
Intensive professional development to help foreign language teachers learn to implement the CBI curricular approach in the language classroom. Introduces all phases of CBI curricular development and provides resources necessary to ensure successful implementation.

CI 5625. Assessing Language Learners? Communication Skills via Authentic Communicative Performance Tasks. (; 2 cr. ; Student Option No Audit; Every Summer)
This institute opens with a discussion of the phrase ?performance towards proficiency? to highlight how classroom performance influences proficiency in real world contexts. Working together, participants will create a list of characteristics of classroom activities and tasks that build learners? proficiency in the target language and will use the list to identify the purpose, effectiveness, and practicality of a variety of model activities and tasks. With this background, participants will design receptive and productive communicative tasks for beginning, intermediate, and advanced levels of proficiency. The institute will then focus on the evaluation of the learners? performance on these tasks. Using the performance descriptors identified by the American Council on the Teaching of Foreign Languages (ACTFL), the Common European Framework of Reference (CEFR), and the World-Class Instructional Design and Assessment (WIDA), participants will identify the domains (vocabulary, language control, text type, etc.) to evaluate learner performance on various tasks. With model rubric scales, they will evaluate examples of learner performances on various tasks, comparing their individual ratings to underline the importance of establishing inter-rater reliability. Participants will then create rubrics for the tasks they designed earlier in the institute. The role and choice of formative assessments used in daily lessons to monitor learner progress towards achievement of the communication goals of an instructional unit will also be considered. As a capstone to the week, participants will apply their learning about task design and evaluation in the development of a standards-based Integrated Performance Assessment (IPA) to share with colleagues within this institute and also with a broader audience via the CARLA Assessment website.

CI 5626. Developing Learners' Sociocultural Competence. (; 2 cr. ; Student Option No Audit; Every Summer)
Overview of how to incorporate a pragmatics component into second/foreign language curriculum to enhance learners' sociocultural competence. Includes approaches to teaching/evaluating pragmatics.

CI 5627. Creativity in the Second Language Classroom. (2 cr. ; Student Option; Every Summer)
This institute will examine the connection between multilingualism and creativity, and explore strategies to increase engagement in the classroom. This institute is designed for foreign language, ESL, and immersion teachers who want to promote creativity in their classroom while simultaneously improving learner?s target language proficiency.

CI 5628. Analyzing Learner Language in Second Language Acquisition. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Review broad findings in second language acquisition (SLA) research. Cognitive/social process of becoming multilingual. How to carry out classroom-based research projects focused on learner language development. prereq: 5646, 5649 [or other course on the grammar of a language]

CI 5631. Second Language Curriculum Development and Assessment. (; 1-3 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Summer)
Instruction/assessment of ESL and World Languages in the modalities of speaking, listening, reading, and writing. Backwards design, proficiency-oriented approach, use of content-based instruction. Planning for the integration of instruction and assessment. prereq: SLC initial licensure only

CI 5632. Literacy and Language Development in Second Language Classrooms. (; 3 cr. ; A-F or Audit; Every Fall)
Processes/instructional approaches in developing second language proficiency in the modalities of reading, writing, speaking, and listening and communicative modes (interpretive, presentational, interpersonal); development of literacy in a second language; planning L2 literacy instruction based on research on L1 and L2 literacy development; integration of instruction/assessment in language teaching. prereq: SLC initial licensure only

CI 5634. Content-Based Instruction in Second Language Settings. (; 3 cr. ; A-F or Audit; Every Spring)
Building on foundation from other courses in the sequence. Instruction/assessment of ESL and World Languages at the secondary level. Prepares students to connect language teaching with other content areas, analyze/address the academic language needs of English learners, and advocate for second language programs and students. prereq: SLC initial licensure only

CI 5635. Culture and Diversity in Second Language Classrooms. (; 3 cr. ; Student Option; Every Spring)
Teaching culture as content and including students' home cultures in the curriculum and diverse student needs. Needs of students of various educational, social, and cultural backgrounds/ways to develop academic success through instruction in learning strategies and other approaches to differentiation. prereq: Initial licensure program only

CI 5636. Problems of Practice in Second Language Education: Seminar for Early Career Language Teachers Part 1. (1.5 cr. ; A-F only; Fall Odd Year)
This course provides recently licensed practicing teachers an opportunity to continue to develop their skills as reflective practitioners within the context of World Languages and ESL with a focus on their own teaching practices and student learning. Participants engage in online discussions, read, reflect, and create professional growth plans.

CI 5637. Problems of Practice in Second Language Education: Seminar for Early Career Language Teachers Part 2. (1.5 cr. ; A-F only; Spring Even Year)
In this course, recently licensed practicing teachers continue to develop their skills as reflective practitioners within the context of World Languages and ESL with a focus on their own teaching practices and student learning. Participants engage in online discussions, read, reflect, and implement and report on professional growth plans. Prerequisite: Completion of CI 5636 or instructor consent.

CI 5638. Critical Approaches to Heritage Language Education. (2 cr. ; Student Option; Every Summer)
Teaching heritage learners is not the same as teaching learners of a foreign language. Heritage languages are languages other than English that are spoken in homes, communities, and extended families. Although many of our students come from vibrant multilingual contexts, unless bilingual options

are available, youth seldom have access to expanding their home/community languages (and literacy in them) in schools, which are predominantly English environments. When students are given the opportunity to use, learn, and expand on their heritage languages, they are able to tap into an abundance of resources and knowledge. Participants in this workshop will examine social justice topics, community-based learning for growing heritage language (literacy), and authentic assessments for heritage language development. Participants will collaborate; connect experiences of heritage teachers and learners to research on multilingual development; and learn how to bring communities, classrooms, and digital storytelling together to create powerful heritage language learning environments.

CI 5641. Language, Culture, and Education. (; 3 cr. ; A-F or Audit; Periodic Spring & Summer)
Applies current sociolinguistic and discourse theory/research to study of relationships between language and culture in educational settings: language curriculum and instruction; classroom language use; borders between school and home/community language use; and educational policies on literacy/second-language instruction.

CI 5642. Assessing English Learners. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Current practices concerning language and academic content assessment of English learners (ELs) at the school site, state, and national level; factors affecting academic learning needs of ELs/where assessment fits into that picture.

CI 5645. Methods for Teaching English Learners. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
The course is designed to give teaching licensure candidates grounding in theory and practice for teaching linguistically and culturally diverse students. This course provides an overview of the benefits and challenges of working with English learners (ELs) and linguistically and culturally diverse students in a variety of settings. Central topics include instructional practices and strategies for teaching English learners; second language literacy and biliteracy development; language learning and bilingualism; and culturally responsive pedagogy. The course is designed to help teacher candidates to develop an understanding of the language-specific challenges that accompany subject matter learning and to demonstrate the ability to apply a range of instructional strategies to help English learners succeed academically. prereq: Early Childhood or Elementary Education ILP or Special Education Major or Special Education M.Ed./M.A candidates

CI 5646. English Grammar for ESL Teachers. (; 3 cr. ; Student Option; Every Fall)
English syntax from pedagogical perspective. Grammatical structures that challenge ESL learners. Analyzing learner errors. Issues/activities related to teaching grammar in ESL contexts. prereq: LING 5001 or instr consent

CI 5648. Advanced Practices in Teaching Academic Language. (; 3 cr. ; A-F only; Every Spring)
Prepares K-12 teachers for student development of academic language proficiency. Read/discuss current research. Implement innovative teaching practices. prereq: Grad student, instr consent

CI 5649. Language Analysis for ESL Teaching in Higher Ed. (4 cr. ; Student Option No Audit; Every Spring)
Overview of complex aspects of English grammar not covered in 5646. Academic uses of passives, indirect objects, conditionals, relative clauses, complementation, reported speech, deixis/reference, articles, prepositions, phrasal verbs, pragmatics. prereq: 5646

CI 5651. Foundations of Second Languages and Cultures Education. (; 3 cr. ; A-F or Audit; Every Fall)
Historical overview of second language teaching/learning in U.S. introduction to second language acquisition. Second language instructional concepts across elementary, secondary/university options for foreign language, bilingual education, immersion language programs, and English as a second language programs. Theoretical frameworks for language instruction are tied to practice.

CI 5653. Methods in Teaching English as a Second Language (ESL) in Higher Education. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Theory/practice teaching academic English as second or foreign language in contexts of higher education. History of field/varied methods in language teaching. Current best practices in teaching academic English pronunciation, listening, speaking, reading, writing skills. prereq: An intro to linguistics course

CI 5654. Practicum in Language Teaching: ESL and World Languages. (1-6 cr. ; S-N only; Every Spring)
Practical, hands-on training in teaching of English as Second Language. Applying theoretical/descriptive material studied in prior course work. Discuss readings/research articles on SLA, applying theoretical/practical principles to specific critical classroom incidents.

CI 5656. Teaching Literacy in Second Language Classrooms. (; 3 cr. ; Student Option No Audit; Every Fall)
Reading comprehension/composing processes in a second language; relationship between first and second literacy development; relationship between reading and writing; relationship of culture to reading comprehension and writing; politics of literacy; assessment of second language literacy; using technology to enhance literacy instruction.

CI 5657. Teaching Speaking and Listening in Second Language Classrooms. (; 3 cr. ; A-F or Audit; Spring Even Year)
Theories/methods in teaching language as communication in oral/aural modes; planning student interaction; classroom organization for oral language learning/acquisition; using technology to enhance interaction; assessment of listening comprehension and oral communication.

CI 5658. Foreign Language Testing and Assessment. (; 3 cr. ; A-F or Audit; Spring Odd Year)
For world language/EFL teachers. Aligning foreign language classroom instruction/assessment; language testing/assessment; classroom-based and large-scale proficiency testing/assessment; assessing proficiency in speaking, listening, reading, writing and communicative modes (interpretive, presentational, interpersonal); creation of formative/summative assessments; critique of contemporary assessment instruments.

CI 5660. Special Topics in the Teaching of Second Languages and Cultures. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Spring & Summer)
Topics related specifically to the needs of the in-service teacher. Topics, location, credits, and duration are flexible.

CI 5662. Second Language Curriculum Design. (; 3 cr. ; A-F or Audit; Every Spring)
Historical overview of curriculum development in second language education; contexts that influence curriculum development; models for curriculum development in second language settings; politics of curricular reform; national/state standards and implications for curriculum development; effects of technology on second language curriculum.

CI 5667. Foreign Language Literacies: Using Target Language Texts to Improve Communication. (2 cr. ; Student Option; Every Summer)
Preparing students to participate in multilingual and multicultural communities entails shifting the way we approach language instruction. How do we move beyond teaching students to order coffee or talk about weekend activities, and instead encourage them to think critically and reflectively about language, culture, and communication? To answer this question, this institute focuses on how to develop students? foreign language literacies?or the ability to interpret and create different kinds of discourse?through engagement with target language texts such as movies, infographics, poetry, music videos, magazine articles, podcasts, and the like. Using conceptual and pedagogical understandings gained during the institute, participants will examine and assess target language texts for use in their classrooms and create text-based instructional materials that develop students? communicative abilities, critical thinking, intercultural competence, and language awareness.

CI 5668. Transitioning to Teaching Language Online. (; 3 cr. ; Student Option; Every Summer)
Transitioning to Teaching Language Online (TTLO) is for experienced classroom language teachers who want to transition to teaching their language class online. Offered completely online, TTLO will give teachers the first-hand experience of being an online learner

while focusing on the important elements of a successful online language class such as online course design guidelines, best practices for online teaching, comparing online to traditional language teaching, and incorporating appropriate technology tools for communicative-based online activities. In addition to delving into these aspects of online teaching, participants will see them in action by taking part in model online language activities as language learners. By the end of the program, participants will have a portfolio of activities ready to be incorporated in an online language course.

CI 5670. Foundations of Dual Language and Immersion Education. (; 3 cr. ; Student Option; Every Fall)
Research foundations and program principles for dual language/immersion. Second language acquisition; critical features of program design/implementation; benefits/challenges of dual language/immersion; program assessment; advocacy. Theory/research for dual language/immersion tied to practical application. prereq: Enrollment in certificate program in dual language/immersion educ or instr consent

CI 5671. Curriculum Development and Assessment in Dual Language/Immersion Classrooms. (; 3 cr. ; Student Option; Fall Odd Year)
Content-based language instruction and curriculum development for dual language, bilingual, and immersion contexts; balancing content/language goals/objectives in curriculum and instruction; integration of language, literacy content, and culture in curriculum; standards-based instruction; backwards design; assessment that aligns with content-based curriculum and instruction. prereq: instr consent

CI 5672. Language-Focused Instructional Practices and Strategies for Dual Language/Immersion Classrooms. (; 3 cr. ; Student Option; Every Spring)
Counterbalancing content with integrated focus on language and literacy development for dual language, bilingual, and immersion classrooms. Materials development; proactive/reactive instructional techniques; noticing and awareness-raising strategies; structuring student language production; differentiating for content, ability, and language. prereq: instr consent

CI 5673. Immersion 101: An Introduction to Immersion Teaching. (; 2 cr. ; Student Option No Audit; Every Summer)
Research-based introduction to issues for teachers, administrators, and district personnel in K-12 immersion education. One-way (foreign language), two-way (bilingual), and indigenous programs. Principles/practices that inform language-attentive curriculum development/instruction.

CI 5676. Biliteracy Development in Dual Language/Immersion Classrooms. (3 cr. ; Student Option; Spring Odd Year)
This course aims to provide dual language, bilingual and language immersion educators with an understanding of the complex phenomena of literacy and biliteracy and with a range of instructional strategies for fostering literacy and biliteracy development in dual language/immersion classrooms.

CI 5693. Directed Study in Second Language Education. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Individual or group work on curricular, instructional, or assessment problems. prereq: instr consent

CI 5696. Practicum: Teaching World Languages and Cultures in Elementary Schools. (; 2-6 cr. ; Student Option; Every Fall, Spring & Summer)
Teaching and learning experiences in Second Languages and Cultures at the elementary-school level. Requires students to work in a public school setting. prereq: 5619, adviser approval; credits cannot be counted on a graduate degree program for endorsement candidates

CI 5697. Practicum: ESL in the Elementary School. (; 2-6 cr. ; Student Option; Every Fall, Spring & Summer)
Teaching/learning experiences in an English as a Second Language setting at elementary school level. Requires students to work in a public school setting. prereq: Adviser approval

CI 5698. Student Teaching in Second Languages and Cultures. (; 2-6 cr. [max 14 cr.] ; Student Option; Every Fall, Spring & Summer)
Student teaching in Second Languages and Cultures at the secondary level for teachers already licensed in another field. Requires students to work in a public school setting. prereq: Adviser approval; credits cannot be counted on a graduate degree program

CI 5699. Clinical Experiences in Second Languages. (; 3-12 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Teaching and learning experiences in elementary and secondary second language instructional settings. Includes a seminar held concurrently to support the student teaching experience. prereq: SLC initial licensure program only

CI 5702. Social Studies Instruction in the Elementary Grades. (; 3 cr. ; A-F only; Every Fall & Spring)
Content/organization of elementary social studies programs. Programs of understanding. Improving learning situation. prereq: Early Childhood or Elementary Education ILP

CI 5741. Introduction to Social Studies Education. (; 3 cr. ; A-F only; Every Summer)
Broad issues and themes related to social studies education, including societal context, rationale, and scope and sequence. Analysis and evaluation of selected teaching strategies, methods, and resources.

CI 5742. Advanced Methods of Teaching the Social Studies. (; 3 cr. ; A-F only; Every Fall)
Focus on developing a repertoire of instructional methods that support authentic pedagogy and assessment. Enhancing reading comprehension and writing skills in the social studies. prereq: Secondary social studies initial licensure student

CI 5743. The Social Sciences and the Social Studies. (; 3 cr. ; A-F only; Every Fall)
Development of instructional strategies and contexts for exploring the social sciences as disciplines at the secondary level; central concepts and generalizations; tools of inquiry; competing structures and theories; and the relative impact of multicultural and gender-fair perspectives on the nature of history and the social sciences. prereq: Secondary social studies initial licensure student

CI 5744. Seminar: Reflecting on Professional Development in Social Studies Education. (; 3 cr. ; A-F only; Every Spring)
Reflecting on teaching experience, examining social/cultural context of teaching/learning, developing a professional identity. Refining teaching and teacher research skills. prereq: Secondary social studies initial licensure student

CI 5745. Engaging Youth With Social Studies Texts. (; 3 cr. ; A-F only; Every Spring)
Ways to engage students (grades 5-12) in social studies (textbooks, literature, speeches, editorials, political cartoons, tables, graphs, maps, film.). Developing middle/high school students' disciplinary literacy.

CI 5746. Global and Multicultural Education in the Secondary Classroom. (; 3 cr. ; A-F only; Every Spring)
Issues, classroom practices, and controversies surrounding global/multicultural perspective-taking in social studies education. Strategies for helping secondary social studies students develop global/multicultural worldviews.

CI 5747. Global and Environmental Education: Content and Practice. (; 3 cr. ; A-F or Audit; Every Spring)
Prepares educators for leadership responsibilities in the area of global environmental education. Focus on the knowledge and process skills necessary to carry out a leadership role in the curriculum.

CI 5762. Developing Civic Discourse in the Social Studies. (; 3 cr. ; A-F or Audit; Periodic Spring & Summer)
Philosophies, strategies, and research on developing civic discourse in secondary social studies classroom. Selecting issues. Democratic classroom climate. Relating to social/cultural contexts.

CI 5782. Clinical Experiences in Teaching Social Studies. (; 1-8 cr. [max 16 cr.] ; S-N or Audit; Every Fall & Spring)
Student teaching experiences for students preparing to become secondary social studies teachers. Teacher candidates work closely with social studies teachers in grades 5-12 to plan and implement engaging and meaningful learning experiences for middle and high school students. prereq: MEd/initial licensure student

CI 5811. Introduction to Teaching Secondary Mathematics. (4 cr. ; A-F only; Every Fall, Spring & Summer)

Introduction to teaching mathematics. Fundamental mathematical ideas/different ways children think about these ideas.

CI 5812. Teaching Algebra. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Uses algebra as vehicle to discuss student learning trajectories, ways to measure students understanding, make instructional decisions to help students grow.

CI 5813. Teaching Geometry. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Geometry/measurement ideas as vehicle to model ways to engage/manage students in more effective ways.

CI 5814. Teaching and Learning Mathematics. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Topics require more sophisticated understanding of teaching based on first year experience/reflect deeper on teaching.

CI 5815. Leadership in Mathematics Education. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Preparing to give back to profession as you grow in role as teacher leader.

CI 5822. Mathematics Instruction in the Elementary Grades. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Principles of learning mathematics in elementary grades. Objectives, content, philosophy, instructional materials, methods of instruction/evaluation. prereq: Early Childhood or Elementary Education ILP

CI 5980. Clinical Experiences for K-12 Teaching. (1-4 cr. ; A-F only; Every Fall, Spring & Summer)
Practical teaching/learning experiences in school setting. Includes co-teaching during student teaching and coaching/assessment by a university supervisor.

CI 5981. Introduction to Equity-Based Pedagogy. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Introduces aspects of inequities in U.S. society/school. Examines how social class/poverty permeated education as social institution/classroom pedagogy. Covers five principles for social class-sensitive change/intersections between social class/other markers of difference.

CI 5982. Enacting Equity-Based Pedagogy. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Extended study of inequities. Examines working-class literature for adults/children. Labor histories, economic systems, hierarchies of class, race, gender, sexuality, language in schools/communities.

CI 5983. Equity-Based Pedagogy/Advocacy. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Extends study of inequities in society. Five principles for social class-sensitive change. Intersections between social class/other markers of difference such as race, gender, sexuality, language.

CI 5984. Planning Design and Management. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Foundational understanding of being teacher, developing culturally responsive classroom, designing learning experiences. Conceptualization of teacher nationally/locally, language in classroom. Foundational concepts/tools used when facilitating learning.

CI 5985. Academic Language and English Learners in the Content Areas. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Prepares teacher candidates to work effectively with English learners/other linguistically diverse students across all content areas. Develop students' academic language proficiency as needed for school success.

CI 5986. Foundations of Special Education. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Skills to promote learning/success for all students, including those at risk for school failure/with special needs. Introduces research/issues emphasizing collaborative problem solving approach that facilitates effective family-professional partnerships/educational programming for individuals with disabilities.

CI 5987. Child and Adolescent Development for Teaching, Learning, and Assessment. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Cognitive, social, emotional development of childhood/adolescence. Ecological influences in development. Theories of learning/cognition, cognitive/social development, motivation, individual/group differences, testing/assessment, teaching methodologies, pragmatic issues.

CI 5988. Clinical Experience: Improvement of Teaching. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Capstone project. Link theory/practice, integrate coursework with experiences in classroom.

Dakota (DAKO)

DAKO 1121. Beginning Dakota I. (; 5 cr. ; Student Option; Every Fall)
Listening, speaking, reading, writing. Oral drills, in-class participation focused on questions/answers.

DAKO 1122. Beginning Dakota II. (; 5 cr. ; Student Option; Every Spring)
Further development of language acquisiton skills. Oral drills, in-class participation focused on questions/answers. prereq: 1121

DAKO 3123. Intermediate Dakota I. (; 5 cr. ; Student Option; Every Fall)
Listening, speaking, reading, writing. Oral drills, in-class participation focused on questions/answers. prereq: 1122

DAKO 3124. Intermediate Dakota II. (; 5 cr. ; Student Option; Every Spring)
Listening, speaking, reading, writing. Oral drills, in-class participation focused on questions/answers. prereq: 1121, 1122, 3123

DAKO 3125. Introduction to Dakota Linguistics. (; 3 cr. ; Student Option; Every Fall)
Structure of Dakota, including phonology, morphology, syntax, and semantics. prereq: 3124

DAKO 3127. Dakota Language for Teachers. (; 3 cr. ; A-F only; Every Fall)
Dakota language for teachers. Methods of teaching Dakota language in the classroom. prereq: 1121

DAKO 4121. Beginning Dakota I. (; 3 cr. ; Student Option; Every Fall)
Language acquisitions skills, oral drills. In-class participation focuses on questions/answers. prereq: [1122, 1004] in another language or passing score on LPE or grad student

DAKO 4122. Beginning Dakota II. (; 3 cr. ; Student Option; Every Spring)
Further development of language acquisition skills. Oral drills, in-class participation focused on questions and answers. prereq: [1121, 1004 in another language] or passing score on LPE or grad student

DAKO 4123. Intermediate Dakota I. (; 3 cr. ; Student Option; Every Fall)
Listening, speaking, reading, writing. Oral drills. In-class participation focuses on questions/answers. prereq: 1121, 3123, 5126

DAKO 4124. Intermediate Dakota II. (; 3 cr. ; Student Option; Every Spring)
Listening, speaking, reading, writing. Oral drills. In-class participation focuses on questions/answers. prereq: 1121, 1122, 3123

DAKO 5126. Advanced Dakota Language I. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Fall)
Focuses on immersion method.

DAKO 5129. Advanced Dakota Language II. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Spring)
Focuses on immersion method.

DAKO 5226. Dakota Mastery I. (3 cr. [max 6 cr.] ; Student Option; Every Fall)
This content-based Dakota language class will focus on Dakota culture and history. Students will learn through both oral and written texts. Both traditional and contemporary stories will be discussed and utilized to give students a better view of Dakota ontology and epistemology. The effects of colonization and the need for decolonization will be also be discussed through the lens of Dakota stories and culture.

DAKO 5229. Dakota Mastery II. (3 cr. [max 6 cr.] ; Student Option; Every Spring)
This content-based Dakota language class will focus on Dakota culture and history. Students will learn through both oral and written texts. Both traditional and contemporary stories will be discussed and utilized to give students a better view of Dakota ontology and epistemology. The effects of colonization and the need for decolonization will be also be discussed through the lens of Dakota stories and culture.

Dance (DNCE)

DNCE 1001. Modern/Contemporary Dance Technique 1. (1 cr. ; Student Option; Every Fall & Spring)
First course in ten-section sequence of modern dance technique. Introductory modern

dance technique training. Dance form varies according to instructor.

DNCE 1010. Modern/Contemporary Dance Technique 3. (; 1-2 cr. [max 4 cr.] ; Student Option; Every Fall)
Third course in ten-section sequence of modern dance technique. Beginning modern dance technique training. Dance form varies by instructor. prereq: dept consent, audition

DNCE 1020. Modern/Contemporary Dance Technique 4. (1-2 cr. [max 4 cr.] ; Student Option; Every Spring)
Fourth course in ten-section sequence of modern dance technique. Beginning modern dance technique training. Dance form varies by instructor. prereq: 1010, dept consent, audition

DNCE 1040. Modern Dance Partnering Technique. (; 1 cr. [max 2 cr.] ; A-F only; Every Spring)
Technical demands, approaches, and skills needed for partnering in modern dance. prereq: Dance major or instr consent

DNCE 1101. Ballet Technique 1. (; 1 cr. ; Student Option; Every Fall & Summer)
Principles, basic technique, and vocabulary of ballet; barre, center, and allegro.

DNCE 1102. Ballet Technique 2. (1 cr. ; Student Option; Every Spring)
Second of two-semester sequence of fundamental Classical Ballet Technique. Principles of Classical Ballet technique. Each principle introduced separately/in progression. Barre/center work with emphasis on simplicity, repetition, creativity. prereq: 1101, or audition, or instr consent

DNCE 1110. Ballet Technique 3. (2 cr. [max 4 cr.] ; Student Option; Every Fall)
First of two-semester sequence of beginning ballet technique. Level 3 in eight-level sequence of ballet technique. Practical application of ballet principles. Barre work needed for center work. Center work will consist of adagio, basic turns, petit, grand allegro. prereq: dept consent, audition

DNCE 1120. Ballet Technique 4. (2 cr. [max 4 cr.] ; Student Option; Every Spring)
Second of two-semester sequence in beginning ballet. Practical application of ballet principles. Barre/center work. Ever-changing combinations/steps learned in previous level. prereq: 1110, dept consent, audition

DNCE 1201. Jazz Technique 1. (1 cr. ; Student Option; Every Fall & Summer)
First of six-semester sequence of jazz dance. Fundamental jazz vocabulary/movement. Basic understanding of proper body placement, clear articulation, basic mechanics of jazz movement, rhythmic footwork. Improvisation will be introduced. Overview of history of jazz music/dance styles.

DNCE 1202. Jazz Technique 2. (1 cr. ; Student Option; Every Spring)
Second of six-semester sequence in jazz dance. Fundamental jazz vocabulary/ movement. Clear articulation of movement, use of space, weight, dynamics, focus, style, musicality. Improvisation. Overview of history of jazz music/dance styles. prereq: 1201 or audition or instr consent

DNCE 1210. Jazz Technique 3. (1 cr. [max 2 cr.] ; Student Option; Every Fall)
Third of six-semester sequence of jazz dance. Vocabulary. Technical skills using variety of jazz dance styles while increasing flexibility, groundedness, strength. Increase understanding of musicality, dynamics, style, improvisation. prereq: dept consent, audition

DNCE 1220. Jazz Technique 4. (1 cr. [max 2 cr.] ; Student Option; Every Spring)
Fourth of six-semester sequence of jazz dance. Expand vocabulary/develop skills, technique, style. Increase flexibility, strength. Use of space, clear articulation of movement, rhythmic footwork, grounding movement, dynamics, musicality. prereq: 1210, dept consent, audition

DNCE 1301. Tap Technique 1. (; 1 cr. ; Student Option; Every Fall & Summer)
Learning fundamental terms, basic rhythm structures, stock steps, and standard time steps.

DNCE 1302. Tap Technique 2. (; 1 cr. ; Student Option; Every Spring)
Fundamental terms, basic rhythms and syncopation, stock steps, and standard time steps; clarity of sound and rhythm. prereq: 1301 or instr consent

DNCE 1313. African Based Movement. (; 1 cr. ; Student Option; Every Fall & Spring)
Varied movement of African diaspora, primarily but not limited to West African region and continent of Africa. Traditional movement. Movement inspired by Africa, the Caribbean, and African diaspora at large. In-class movement participation, one movement midterm, one two-page paper.

DNCE 1327. Argentine Tango. (; 1 cr. ; Student Option; Every Fall)
Basic rhythms emphasizing posture, axis, walking, lead/follow techniques, footwork patterns. Students listen to music to identify rhythm, communicate.

DNCE 1331. Yoga. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Theory/practice of Yoga. Standing postures, forward bends, twists, balancing, seated postures, inversions, back bends, guided relaxation/meditation. Proper alignment, weight placement, body awareness, relaxation, breathing techniques. Midterm paper, movement demonstration final.

DNCE 1332. Yoga for Dancers. (; 1 cr. ; Student Option; Periodic Fall & Spring)
Physical experience and related aesthetic topics. Historical aspects. Philosophical ideas of yoga. Improving body mechanics through alignment, flexibility, and strength. Developing mental focus/control. Reinforcing positive body language.

DNCE 1335. T'ai Chi Ch'uan. (; 1 cr. ; Student Option; Every Spring & Summer)
Ancient Chinese slow-motion exercise. Helping body/mind to become relaxed/centered. Natural movement patterns, deep breathing, tranquil stress-free mind. Self-defense applications of movements. Non-competitive, non-aggressive.

DNCE 1343. Urban & Street Dance Forms 1: Introduction. (; 1 cr. ; Student Option No Audit; Periodic Fall)
We study the origins of Hip Hop dance and how it has evolved to the current incarnations of the form. There is also a focus on Hip Hop culture as a whole and we have many discussions about issues of identity, relation to power, appropriation, and youth culture. The specific forms of movement in this course are toprocking, rocking, breakdancing (breaking), New Jack Swing, and house dance. Some questions to focus on: What is Hip Hop dance? Where does it originate? Who created Hip Hop artistic expressions? What voices/bodies are heard/seen or not heard/not seen in the films assigned?

DNCE 1344. Urban & Street Dance Forms 2: Advanced Foundation and Histories. (1 cr. [max 2 cr.] ; A-F only; Every Fall & Spring)
In this second course in the dance program's 4-semester Urban and Street Dance sequence, students further investigate the technical foundations and histories of rocking, breaking, funk styles, krump, house, and specific techniques that mix these forms together. These further explorations focus on more advanced techniques, aesthetic approaches, and complex issues within these forms. Students are assigned readings and writing assignments that critically examine each issue. Students will participate in an informal showing at the end of the semester. Prerequisite: completion of DNCE 1343 or audition.

DNCE 1345. Alexander Technique for Movement Artists. (2 cr. ; Student Option No Audit; Every Spring)
Increased kinesthetic awareness of habitual movement patterns in order to improve dance/ movement technique and prevent related injuries.

DNCE 1349. Contact Improvisation. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Safe, clear introduction to principles of contact improvisation. Rolling point of contact, supporting/being supported, falling/recovering, connecting with center as source/support for movement. Classes include warm-up.

DNCE 1351. African Diasporic Movement 1. (; 1 cr. ; Student Option No Audit; Every Fall)
First of six-course sequence. Introduction to traditional West African dance technique as a foundational base to begin learning technique, body placement, movement, space, time, energy, isolations, patterns, etiquette, community building, group work and presentation.

DNCE 1353. African Diasporic Movement 3. (; 1 cr. ; Student Option No Audit; Every Fall)
Third of six-course sequence. Afro-Brazilian dance, including jumps, turns, floor work, and rhythmicity to develop flexibility, strength, and vocabulary in polycentric movement, moving toward body-sound harmony, illuminating dynamics of coordination, relaxation, breathing, undulation.

DNCE 1354. African Diasporic Movement 4. (; 1 cr. ; Student Option No Audit; Every Spring)
Fourth of six-course sequence. Builds on level 3 by exploring movement from mythology of Afro-Brazilian belief systems orix??? and Candombl???. How corporal knowledge and technique fluency through the course sequence support different dance techniques. prereq: 1353 or audition or instr consent

DNCE 1401. Introduction to Dance. (AH; 3 cr. ; Student Option No Audit; Every Fall & Spring)
What is dance? How does movement create meaning? Dance as action and framework for analysis of moving bodies. Movement politics of race, class, gender, sexuality, and nation through reading, writing, moving, and watching dance performances. Discussion. Dance experience not required.

DNCE 1601. Dance Improvisation. (; 1 cr. ; A-F or Audit; Every Fall)
Individual ways of moving linked to fundamental elements of dance: time, space, and energy. Metered time, musical phrasing. Movement speed, shape, and quality. Creative process, individual movement vocabulary, structural devices in dance. prereq: Concurrent registration in a modern dance technique course, dept consent

DNCE 1626. Music for Dance. (AH; 3 cr. ; Student Option; Every Fall)
Cultural gravity of the Western perspective. Ways global regions express natural laws of acoustics through music while considering historical, political, and ethical issues around the relationship between music and dance. Workshops, practice, and exercises. prereq: dept consent

DNCE 1701. Freshman/Sophomore Repertory. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Immersed in a professional dance company environment, this repertory class will help students develop the necessary skills to effectively navigate the complexities inherent to professional repertory dance companies. Through learning the unique and varied styles of multiple choreographers, the course examines distinguishing factors of these various choreographic works, illuminating for the student, their responsibilities as dance artists and further developing their abilities to maintain the integrity of preexisting works.

DNCE 3010. Modern/Contemporary Dance Technique 5. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall)
Fifth course in ten-section sequence of modern dance technique. Application of principles of space, time, energy. Alignment, power from pelvic center, rotation/turnout, muscular tonality, joint articulation, clarity of intent, stretch, strength, stamina. prereq: dept consent, audition

DNCE 3020. Modern/Contemporary Dance Technique 6. (; 2 cr. [max 4 cr.] ; Student Option; Every Spring)
Sixth course in ten-section sequence of modern dance technique. Application of principles of space, time, energy. Alignment, power from pelvic center, rotation/turnout, muscular tonality, joint articulation, clarity of intent, stretch, strength, stamina. prereq: 3010, dept consent, audition

DNCE 3110. Ballet Technique 5. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall)
Stretch, strength, balance, musicality. Longer phrases in adagio/allegro work. More complex elevations in petit allegro. Practical work conducted in context of study of technical development of ballet. prereq: dept consent, audition

DNCE 3120. Ballet Technique 6. (; 2 cr. [max 4 cr.] ; Student Option; Every Spring)
Continuation of 3110. Ballet technique. Stretch, strength, balance, musicality. Longer phrases in adagio/allegro work. More complex elevations in petit allegro. prereq: 3110, dept consent, audition

DNCE 3210. Jazz Technique 5. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall)
Continuation of jazz technique. Rhythm structures, longer phrases, greater physical speed, attack/control. prereq: dept consent, audition

DNCE 3220. Jazz Technique 6. (; 1 cr. [max 2 cr.] ; Student Option; Every Spring)
Continuation of 3210. Jazz technique. Rhythm structures, longer phrases, greater physical speed, attack/control. prereq: 3210, dept consent, audition

DNCE 3301. Tap Technique 3. (; 1 cr. ; Student Option; Every Fall & Summer)
Tap techniques and creative development through improvisational studies. prereq: 1302 or instr consent

DNCE 3302. Tap Technique 4. (; 1 cr. ; Student Option; Every Spring)
Tap techniques and rhythm structures. prereq: 3301 or instr consent

DNCE 3334. Introduction to Dance/ Movement Therapy. (2 cr. ; Student Option; Every Fall & Spring)
Historical/theoretical perspectives on use of movement/dance in relationship to psychology/healing. D/MT pioneers/techniques. Applications of D/MT with various populations/ settings. Experiential course. prereq: dept consent

DNCE 3337. Body Mind Centering. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Improvisational movement explorations, hands-on re-patterning work. Direct experience of the way mind (desire, attention, intention) is expressed through various body systems. Students use imagery, touch, and anatomical information to access a range of inner sensations and movement experiences. Emphasizes each individual's unique experience of the body.

DNCE 3341. Urban & Street Dance Forms 3: Emerging Scholar. (1 cr. [max 2 cr.] ; A-F or Audit; Every Fall & Spring)
This is the third course in the dance program's 4-semester Urban and Street Dance sequence. It focuses on intermediate/advanced techniques in rocking, breaking, funk styles, krump, house, and specific techniques that mix these forms together. These further explorations focus on more advanced techniques, aesthetics, and complex issues within forms practiced by instructors. Students are assigned readings, videos, and writing assignments to think critically about each issue. There is an informal showing at the end of the semester. prereq: Completion of DNCE 2341 or audition.

DNCE 3342. Urban & Street Dance Forms 4: Scholar. (1 cr. [max 2 cr.] ; A-F or Audit; Every Fall & Spring)
This is the final course in the Dance Program's 4-semester Urban and Street Styles sequence. It focuses on advanced techniques in rocking, breaking, funk styles, krump, house, and specific techniques that mix these forms together. These further explorations focus on advanced techniques, aesthetics, and complex issues within forms practiced by instructors. Students are assigned readings, videos, and writing assignments to think critically about each issue. There is an informal showing at the end of the semester. Prerequisite: Completion of DNCE 3341 or audition

DNCE 3351. African Diasporic Movement 5. (; 1 cr. [max 2 cr.] ; Student Option No Audit; Every Fall)
Rigorous practice. West African techniques. Cardiovascular endurance of students will improve as a result. Live drummers, students can expect to learn drum parts to enhance the understanding of the rhythms. prereq: 1354 or audition or instr consent

DNCE 3352. African Diasporic Movement 6. (; 1 cr. [max 2 cr.] ; Student Option No Audit; Every Spring)
Dances performed by dance companies of Guinea through the use of more complex and deep rhythms such as Yamama, Doundounba, Baho and Tiribah. Rigorous practice. West African techniques. Live drummers. prereq: DNCE 3351 African Diasporic Movement 5 or audition or instructor consent

DNCE 3401W. Dance History 1. (GP,WI; 3 cr. ; Student Option; Every Fall)
Historiography of dance, 20th century through present. Reconstruction/incorporation of dance practice in context of globalization. Artistic choices as influenced by complex history of performing arts and terrain of body/politics.

DNCE 3402W. Dance History 2. (WI; 3 cr. ; Student Option; Every Spring)
History/theory of dance in varied forms/ aspects. From development of ballet through 20th century modern dance. Second half of year-long survey. prereq: 3401W

DNCE 3411. Dance and Popular Culture: Choreographing Race, Class, and Gender. (DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
How race, class, and gender become aestheticized and are put into motion as popular culture. Choreographic analysis of moving bodies. How "popular" affects understanding of culture. Exoticism, binary structures of stereotypes, identity, hegemony.

DNCE 3433. Articulate Body. (; 3 cr. ; Student Option; Every Spring)
Lectures and movement sessions in biodynamic considerations for optimal dance performance and metabolistic demands of dance. prereq: Dnce major, dept consent

DNCE 3434. Nutrition and Body Maintenance for Movement Artists. (; 2 cr. ; Student Option No Audit; Every Spring)
Students learn and research ways to improve nutrition and remain injury-free throughout career and beyond. Discuss nutrition principles and apply to unique challenges, needs, interests of movement artists. Examine anatomy of movement to develop constructive injury prevention and management strategies. Stress reduction.

DNCE 3487W. Dance and Citizenship: Land, Migration, and Diaspora. (WI; 3 cr. ; Student Option; Every Fall)
Dance/performance as practiced/transformed by minority groups in the United States. Migration as a global phenomenon, particularly pertaining to land disputes, labor distribution, political asylum, refugee, and dislocation.

DNCE 3500. Topics in Dance. (; 1-3 cr. [max 6 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
Topics specified in Class Schedule.

DNCE 3601. Dance Composition 1. (; 3 cr. ; Student Option; Periodic Spring)
Movement, vocabulary in relation to theme, space, time, energy, and body parts; solo, duet, and trio forms. prereq: 1020, 1601, concurrent regis in a modern dance technique course, dept consent

DNCE 3602. Dance Composition 2. (; 3 cr. ; Student Option; Every Fall)
Movement, vocabulary in relation to theme, space, time, energy, and body parts. Solo, duet, and trio forms. prereq: 3601, dept consent, concurrent regis in a modern dance technique course

DNCE 3621. Dance Production I. (; 2 cr. ; A-F or Audit; Every Fall)
Technical/administrative aspects of dance production. Lighting, costumes, sound, marketing, stage management, fundraising, publicity. Emphasizes practical project management and personal management skills. prereq: Dance major, dept consent

DNCE 3622. Dance Production II. (; 2 cr. ; A-F or Audit; Every Spring)
Continuation of 3621. Students produce the spring Student Dance Concert. prereq: 3621, dance major, dept consent

DNCE 3700. Performance. (; 1 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Creation or reconstruction of a dance theatre work under the direction of a guest artist or faculty member. Work is performed at the end of the rehearsal period. prereq: Concurrent enrollment in a technique course, audition, dept consent

DNCE 3701. Summer Dance Intensive. (; 1-3 cr. [max 6 cr.] ; Student Option No Audit; Every Summer)
Real-world experience with a professional dance company. Students participate in daily technique and repertory classes culminating in an informal performance. Artists are arranged year-by-year.

DNCE 3901. Career Readiness in Dance. (; 1-3 cr. ; A-F or Audit; Periodic Spring & Summer)
Strategies fundamental to a dancer's survival. Injury prevention/care. Development of healthy dietary and muscular/skeletal habits. Career tracks. prereq: Dance major, dept consent

DNCE 4443. Theorizing Dancing Bodies. (; 3 cr. ; Student Option; Every Fall)
Major developments in Western philosophic thought on dance and dance theory, from its beginnings to present. prereq: 3402W or instr consent

DNCE 4601. Dance Composition 3. (; 3 cr. ; Student Option; Periodic Spring)
Continuation of movement vocabulary through improvisation, analysis of form and structure, experimentation with tone and performance persona. Effects of lights/costumes/text/props/ music; development of larger ensemble works. prereq: 3602, concurrent regis in a modern dance technique course, dept consent

DNCE 4602. Dance Composition 4. (; 3 cr. ; Student Option; Every Fall)
Continuation of 4601. Movement vocabulary through improvisation, analysis of form and structure, experimentation with performance persona, and the effects of technical elements. Development of larger ensemble works. prereq: 4601, concurrent registration is required (or allowed) in modern dance technique course, dept consent

DNCE 4901. Capstone Seminar for Dance. (; 1-2 cr. ; S-N or Audit; Every Fall)
Development of senior project, alone or in groups, under guidance of faculty members. prereq: Sr, [Dnce or Th major]

DNCE 5010. Modern/Contemporary Dance Technique 7. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall)
Seventh course in ten-section sequence of modern dance technique. Continuation of technical development. Performance range/ style. Students study with various guest artists. prereq: dept consent, audition

DNCE 5020. Modern/Contemporary Dance Technique 8. (; 2 cr. [max 4 cr.] ; Student Option; Every Spring)
Eighth course in ten-section sequence of modern dance technique. Performance range/ style. Students study with various guest artists. prereq: 5010, dept consent, audition

DNCE 5030. Modern/Contemporary Dance Technique 9. (2 cr. [max 6 cr.] ; A-F or Audit; Every Fall)
Ninth course in ten-section sequence of modern dance technique. It focuses on pre-professional technique training for students prepared for that level of technical achievement and readying themselves for a potential career as contemporary dance professionals. All Dance Program Modern Dance Technique courses examine the practical application and understanding of principles of space, time, and energy focusing on alignment, weight, momentum, power for the body's core, joint and skeletal articulation, clarity of focus and intent, flexibility, strength, stamina and energy flow and lines through the use of breath appropriate to the technical level of the course. The course also explores a range of performance strategies that students may encounter for future performance experiences within the dance program and beyond.

DNCE 5040. Modern/Contemporary Dance Technique 10. (2 cr. [max 6 cr.] ; Student Option; Every Spring)
Tenth course in ten-section sequence of modern dance technique. It focuses on pre-professional technique training for students prepared for that level of technical achievement and readying themselves for a potential career as contemporary dance professionals. All dance program modern dance technique courses examine the practical application and understanding of principles of space, time, and energy focusing on alignment, weight, momentum, power for the body's core, joint and skeletal articulation, clarity of focus and intent, flexibility, strength, stamina and energy flow and lines through the use of breath appropriate to the technical level of the course. The course also explores a range of performance strategies that students may encounter for future performance experiences within the dance program and beyond.

DNCE 5110. Ballet Technique 7. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall)
Continuation of ballet technique. Musicality, performance, stylistic differences.
Practical work conducted within context of choreographic/aesthetic development of ballet. prereq: dept consent, audition

DNCE 5120. Ballet Technique 8. (; 1 cr. [max 2 cr.] ; Student Option; Every Spring)
Continuation of 5110. Musicality, performance, stylistic differences. Practical work conducted within context of choreographic/aesthetic development of ballet. prereq: 5110, dept consent, audition

DNCE 5334. Introduction to Dance/ Movement Therapy. (2 cr. ; Student Option; Every Spring)
Historical/theoretical perspectives on use of movement/dance in relationship to psychology/healing. D/MT pioneers/techniques. Applications of D/MT with various populations/ settings. Experiential course. prereq: dept consent

DNCE 5443. Theorizing Dancing Bodies. (; 3 cr. ; Student Option; Every Fall)
Major developments in Western philosophic thought on dance and dance theory, from its beginnings to present. prereq: instr consent

DNCE 5454. (Re)Writing the Dancing Body. (; 3 cr. ; Student Option; Every Spring)
Modes of writing found in dance studies. Oral histories, historical documentation, performance reviews, performance ethnographies, scholarly essays. Discussion/ critique of existent modes of writing. Writing/ rewriting practice. prereq: Grad student

DNCE 5493. Choreographing Social Justice: Staging "Equitable" Choreographies. (; 3 cr. ; A-F only; Every Spring)
Possibilities and implications of artistic work. Metaphoric bodily practices and intersections of performance and social justice practices. Theories and histories of intersections within communities of color across global North and South. Group project. prereq: 4443 recommended

DNCE 5495. Dance and Global Tourism. (; 3 cr. ; Student Option No Audit; Every Fall)
Politics of dance/performance for tourism industry. Ways in which dancing body produces ideas of nation-state. How this reflects stereotypes of female identity in global context. prereq: Grad student

DNCE 5500. Topics in Dance. (; 1-3 cr. [max 30 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics specified in Class Schedule.

DNCE 5601. Dance Composition 5. (; 1-2 cr. ; Student Option; Every Spring)
Final part of six-semester sequence in dance composition. Exploration of movement through independently scheduled rehearsals. Choreographic concepts. Tools in dance creation, development/refinement of movement, structure of group choreography. prereq: 4601, 4602, dept consent

DNCE 5700. Performance. (; 1-2 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Technique, improvisation, choreography, music, design, and technical production as they relate to dance performance. prereq: concurrent registration is required (or allowed) in technique course, dept consent, audition based Students cast in more than one choreographic piece should register for section 002 for 2 credits

DNCE 5858. Dance Pedagogy. (; 3-4 cr. ; Student Option; Every Fall)
Teaching dance provides the foundational pedagogy and methods for artful and responsible teaching and learning in dance. Students will examine key dance education theories and quality teaching practices, and then apply the theories by developing and teaching dance lessons. The course introduces tools that assist in the planning, teaching, assessing, and sharing of dance experiences with children, adolescent, and adult learners in a variety of settings. Specific learning opportunities include: readings, investigation and discussion of dance pedagogy; the creation of lesson plans; teaching labs (in-class and off-site supervised practice teaching); and clinical observations where students can observe the theory in practice.

DNCE 5993. Directed Studies. (1-4 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Guided individual study. Prereq-instr consent, dept consent, college consent.

Data Science (DSCI)

DSCI 5980. Special Topics in Data Science. (; 1-3 cr. [max 27 cr.] ; A-F or Audit; Every Fall & Spring)
Topics vary each semester.

DSCI 5994. Directed Research. (1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed Research

Denmark's Intl Study Program (DIS)

DIS 1001. Beginning Danish I. (; 3-5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Speaking/understanding skills for everyday situations, using family or collegium as point of departure. Reading, writing, grammar.

DIS 1002. Beginning Danish II. (; 3-5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Speaking/understanding skills for everyday situations. Using family or collegium as point of departure. Reading, writing, grammar.

DIS 1003. Intermediate Danish I. (; 3-5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
First semester of second-year Danish, using increasingly difficult texts and written assignments.

DIS 1004. Intermediate Danish II. (; 3-5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Continues intermediate Danish I at more advanced level.

DIS 3120. Interior Design Studio. (; 6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Research/design. Aspects of Danish tradition, its relation to surrounding culture.

DIS 3210. European Art of the 19th Century: From Classicism to Symbolism. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Development of art in 19th century in France and Scandinavian countries.

DIS 3211. European Art of the 20th Century: From Expressionism to Postwar Art. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Major artistic concepts, 1900-1950. Expressionism, cubism, abstract art, surrealism.

DIS 3212. European Art: From Impressionism to Abstract Art. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Modernist art of late 19th and early 20th centuries.

DIS 3213. History of European Film. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Emphasizes post-World War II film history of France, Italy, Germany, Great Britain, the Soviet Union, and Scandinavia. Basic facts/ methods of film comprehension, film analysis, and general film history.

DIS 3214. Contemporary European Film: the Individual and Society. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Representative themes in contemporary European film concerning attitudes in social, political, and artistic issues in France, Germany, Great Britain, Italy, Sweden, and other countries.

DIS 3230. History of European Ballet. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Main facets of European ballet from Renaissance to present, its development in social/artistic context. Visits to Royal Danish Ballet.

DIS 3320. Dickens and Andersen: Romanticism, Realism, and Modernism. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Comparative reading of Dickens and Andersen. Touches on European literary romanticism, realism, and modernism.

DIS 3321. Hans Christian Andersen. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Life/works of Andersen. Analysis of selected texts. Andersen as writer in European romantic tradition.

DIS 3322. Masterpieces in Modern Scandinavian Literature. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to major figures in Scandinavian literature since 1870. "Modern breakthrough." Literature as vehicle raising social/human problems and as expression of Scandinavian character and world view.

DIS 3331. Nationalism and Minorities in Europe. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Causes/impacts of nationalism. Proliferation of ethnic/national minority conflict in post-Cold War Europe. Models to explain nationalism. Instruments/policies to deal with nationalism.

DIS 3332. Environmental Problems and Policy: a European Perspective. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Current local/global environmental issues, options at hand, politics involved.

DIS 3333. European Conflict and Security Issues. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Problems of European security. Emphasizes issues resulting from end of Cold War. Search for new European security order. Emergence of security threats such as nationalism and minority issues.

DIS 3334. Russia under Putin. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Past/current developments. Attempts to look into future: How will Russia develop politically, economically, and militarily?

DIS 3341. The Jews in Europe from the Middle Ages to the Present. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
History, culture, and beliefs of the Jewish populations in Eastern and Western Europe, mostly from 18th century to present.

DIS 3342. The Impact of Epidemic Disease upon European History. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
How epidemic disease has been a powerful factor in shaping attitudes, belief systems, institutions, and policies (e.g., public health).

DIS 3343. Environmental History of Europe. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
European history, Ice Age-present, from ecological perspective. Theories of environment as determining factor in historical development.

DIS 3344. 20th Century European History. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Main periods/trends in European history, from end of 19th century to present. Interplay of political, social, and ideological developments.

DIS 3421. Kierkegaard: Philosophy and the Meaning of Life. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Kierkegaard?s view on relationship of personal existence to art, society, philosophy, and religion.

DIS 3422. Making of the Modern Self. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to Kant, Hegel, Nietzche, Heidegger, and others. Trying to find meaning in a world that no longer offers one answer to the question, "What is a human being?"

DIS 3423. Biomedical Ethics. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
What are ethical criteria for evaluating biotechnology? How far do we want to legislate "life"? How can such legislation be enforced?

DIS 3431. Danish Politics and Society. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Analyzes politics, economics, and society of contemporary Denmark.

DIS 3433. The European Union. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
European unification, from its inception in early 1990s to its ongoing development today.

DIS 3441. Brain Functioning and the Experience of Self. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Relationship between biological, psychological, and social factors that contribute to human functioning and the individual?s experience of self-in-the-world.

DIS 3442. Developmental Psychopathology. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Risk, resilience, and psychopathology in children?s development. Bridges gap between developmental psychology and abnormal psychology.

DIS 3451. Nordic Mythology. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Myths, cults, and traditions of pre-Christian Nordic peoples as expressed in contemporary literature, eye-witness reports, and art. Emphasizes Viking period. All readings in modern English translations.

DIS 3511. Criminal Justice in Scandinavia. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Ideology of crime control and criminal justice administration in Scandinavia, with a North American point of reference. Emphasizes Scandinavia's liberal criminal policy and fairly modest crime rate.

DIS 3620. Architecture Foundations Studio. (; 6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Elements of architectural design: principles of structure, process of design, composition of form, functional resolution, language of architectural graphics, presentation of projects in drawings/models.

DIS 3621. Architectural Design Studio. (; 6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Combines small-group/individual research, programming, and design in relation to Danish regional conditions. Field visits (e.g., buildings, housing areas, construction sites).

DIS 3622. Architectural Interior Design Studio. (; 6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Builds on Architectural Design Studio I, with increasing independence in programming/ evaluating projects.

DIS 3623. 20th Century Danish Architecture. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Danish architecture in historical, political, and social/architectural context. Relation of Danish architecture to Scandinavian/international architecture.

DIS 3624. Contemporary European Architectural Theories. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Complexities of contemporary architecture. Comprehensive foundation for students? own work.

DIS 3625. Watercolor Painting. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Watercolor painting theory/practice. Wet/dry painting techniques. Mixing/applying colors. Choosing tools/paper. Effects of color pigment/ shading. Meaning of shape/volume, light/ shadow, glossy/matte, and short/long viewing distance.

DIS 3626. Visual Journal. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Seminar. Students develop Journal as tool for analyzing (e.g., architectural solutions, urban spaces). Skill-building in observation, and in recordings of physical environment and individual objects.

DIS 3627. Urban Design Journal. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Experiencing, analyzing, and recording urban landscape, its fabric, spatial elements, and individual components, through a journal.

DIS 3628. Scandinavian Design and Architecture. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Overview of Scandinavian design/architecture. Historical/current conditions of architecture, urban design, and planning from architectural, social, and political points of view.

DIS 3630. Furniture Design Studio and Workshop. (; 6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Process of furniture making. Students develope/refine a concept, produce working drawings, and build a wood or steel model.

DIS 3631. Furniture Design in Scandinavia. (; 3-6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to furniture design in Scandinavia. Focuses on Denmark. Current/historical conditions of furniture. Design theories/ methodologies.

DIS 3641. Digital Design in Scandinavia. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Aspects of history, theory, and practice of Scandinavian design. Philosophical, economic, and political trends that affect practice of design in a global perspective.

DIS 3730. International Finance in a European Context. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Exchange rate determination, inflation rates, interest rates. Managing exchange-rate risk. Financial/investment decisions made by multinational companies. Issues related to European Economic and Monetary Union.

DIS 3740. European Business Environment: the EU. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
European Union in terms of basic business-related functions, institutions, policies, issues, and implications for international business operations/competitiveness. Required study tours.

DIS 3742. Environmental Business Strategy. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
"Green management" experience. Action of advanced European companies in face of international environmental regulation, EU opportunities/instruments for industry, and management theory.

DIS 3760. Global Business Strategy: European Approaches. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Strategic response of European business managers to recent international economic developments.

DIS 3761. Human Resource Management in Europe. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Analysis/interpretation of the way human resources are dealt with in various European countries.

DIS 3820. European Business Environment: the EU. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
European Union in terms of basic business-related functions, institutions, policies, issues, and implications for international business operations and competitiveness. Includes required study tours.

DIS 3821. Marine Biological Research Project. (; 6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Research project with practical field components. Students use scientific libraries of various research institutions, engage in discussions/seminars with leading Danish/ German scientists, and conduct experiments on research ship and at marine biological laboratory.

DIS 3822. Ecology and Human Impact in the North and Baltic Seas. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Ecosystems of North/Baltic Seas. How natural/ human activities threaten their integrity. Given in Copenhagen area, with study tour in northern/western Denmark.

DIS 3823. Biology of Marine Mammals. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Ecology/physiology of marine fish, birds, and mammals. Factors controlling vertebrate distribution/abundance. Role of vertebrates in marine ecosystems. Ecological impact of habitat alteration, pollution, fishing, and hunting. Emphasizes North/Baltic Seas.

DIS 3824. Ecotoxicology: Principles and Practice. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to fate/effects of toxic chemicals in ecological systems.

DIS 3825. Intensive Ecotoxicology Laboratory: Introduction to International Tests and Assays. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Hands-on experience of standard ecotoxicological test methods used internationally.

DIS 3826. Biophysical Basis of Ecophysiology. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to biophysics and biophysical chemistry as basis for biologist's understanding of physiological processest.

DIS 3827. Element and Energy Cycling in Ecosystems. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Major element cycles/processes that regulate flow/transformation of elements/energy in ecosystems.

DIS 3828. Intensive Field Course: Carbon Cycling in Danish Forest and Fjord Ecosystems. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students use/evaluate classic ecological techniques for measuring carbon flow/transformations in terrestrial/aquatic ecosystems on coast of Denmark.

DIS 3830. Marine Biology of European Coastal Waters. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Marine biology of Baltic/North Seas. Coastal waters, interactions between organisms and their environment, methods to investigate biological systems. Students conduct simple experiments during field trips in Denmark.

DIS 3901. Religion in Crisis. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)

Dental Hygiene (DH)

DH 1101. Introduction to Dental Hygiene. (1 cr. ; A-F only; Every Fall)
An introduction to the profession of dental hygiene through active learning, lectures, and discussions. The goal of this course is for students to explore the dental hygiene profession in order to assess their interest in pursuing a career in dental hygiene. Additionally, the course will provide an overview of the dental hygienist?s role in the treatment and prevention of oral diseases.

DH 2111. Dental Anatomy, Embryology & Histology. (; 3 cr. ; A-F or Audit; Every Fall)
Structural microscopic anatomy of oral hard/soft tissues. All deciduous/permanent teeth, including tooth form, function, and relationship to oral health. Tooth development, calcification, eruption, and exfoliation patterns. Ideal static occlusion, dental terminology, tooth annotation systems. Learning activity includes identification/annotation of teeth, dental histology, embryology, and anatomy.

DH 2121. The Dental Hygiene Care Process Clinical Application I. (; 5 cr. ; A-F or Audit; Every Fall)
Dental hygiene care process, assessment principles related to medical and oral health status, dental hygiene clinical procedures, and development of instrumentation skills. prereq: DH student

DH 2132. Head and Neck Anatomy. (; 2 cr. ; A-F or Audit; Every Fall)
The anatomical structures of head and neck as they relate to the practice of dental hygiene and dental therapy.

DH 2212. Communication for Oral Health Providers. (2 cr. ; A-F only; Every Spring)
This course introduces the study of effective communication strategies within the health care team and during patient-provider relationships. There is an emphasis on public speaking basic principles, effective strategies, and ethical approaches. The application of health literacy concepts and behavior change theory as components of evidence-based decision making in a variety of practice settings will be taught.

DH 2215. Oral Histology and Embryology. (; 2 cr. ; A-F or Audit; Every Spring)
Development of orofacial region. Structural microscopic anatomy of oral hard/soft tissues applicable for rendering clinical treatment. prereq: DH student

DH 2221W. Periodontology. (WI; 3 cr. ; A-F only; Every Spring)
This course introduces periodontal diseases; etiology, assessment, and treatment options. It includes clinical experience in debridement, root planing with ultrasonic and hand instruments. (3 credits) prereq: DH student

DH 2222. Dental Hygiene Care Process Clinical Application II. (; 4 cr. ; A-F or Audit; Every Spring)
In this class you will begin to apply your knowledge of the various preventive products, patient education, assessment data and medical histories to clinical practice. You will develop application skills in fluoride treatments and pit and fissure sealants as well as the evaluation of products used in the treatment of dental caries and periodontal diseases. This class will also give you an introduction to the School of Dentistry's clinical systems, various medical and emergency conditions affecting patient care and preventive strategies for oral diseases.

DH 2225. Microbiology, Immunology, and Oral Health. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Encounters with microorganisms are part of everyday life for humans, both as pathogenic and non-pathogenic entities. During this microbiology course students will learn characteristics of microbial life for bacteria, viruses, parasites, and fungi. An emphasis will be places on microorganisms that are commonly found in the oral cavity. An introduction to the human immune system and its function in regulating infections will be presented. Students will gain an understanding of both commensal microbiota and pathogenic microorganisms, and how their impact on human health. Additionally, students will begin to convey scientific data and research results to non-scientists as a basis for discussing disease prevention, infection management, and treatment plans in a clinical setting. prereq: dental hygiene student

DH 2231. Cariology and Applied Nutrition in Dental Hygiene Care. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
The study of dental caries etiology, pathology and prevention, and the applied principles of diet and nutrition to dental hygiene patient care with skills in dental dietary counseling. Course content also includes a comprehensive review of CAMBRA. Cariology and Applied Nutrition in Dental Hygiene Care is designed to provide the beginner level dental hygiene student with a knowledge base in cariology and nutrition as it applies to the oral cavity. The implementation of this knowledge is Dental Dietary Counseling with a dental hygiene patient. DH 2231 relies on the communication skills developed in DH 2212.

DH 3121. Local Anesthesia and Pain Management. (2 cr. ; A-F only; Every Summer)
Concepts in the administration of local anesthesia, nitrous oxide-oxygen sedation, and other methods of pain management. Anatomy, physiology, pharmacology, patient assessment, indications and contraindications, selection of agents, injection techniques, complications, emergency management, and legal/ethical considerations. Lecture, lab, clinic. Clinical sessions include actual experience in administering local anesthesia and other methods of pain management. The administration of local anesthesia will be taught to clinical competency. The didactic component of nitrous oxide-oxygen sedation will be completed in this course with clinical experiences occurring in the Faculty Practice Clinic and in subsequent clinical rotations leading to clinical competency in this method of pain management.

DH 3123. The Dental Hygiene Care Process Clinical Application III. (4 cr. ; A-F only; Every Summer)
Dental hygiene planning for caries prevention and control, non-surgical periodontal therapy and tobacco cessation. Case presentation, ergonomic and clinical experience in dental hygiene patient care. prereq: DH student

DH 3125. General and Oral Pathology. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
This course covers topics in pathology related to dentistry and the oral cavity. Oral benign/malignant tumors, infectious, inflammatory, and immunologically mediated lesions/diseases are covered.

DH 3126. Oral and Maxillofacial Radiology Clinic I. (0 cr. ; A-F or Audit; Every Fall & Summer)
Radiographic Technique. Exposing radiographs on skulls, interpretation, panoramic/extraoral technique, quality assurance procedures. prereq: DH student

DH 3133. Pharmacology. (; 2 cr. ; A-F or Audit; Every Summer)
Principles of pharmacology, physical/chemical properties of drugs, modes of administration, therapeutic/adverse effects, drug actions/ interactions. prereq: DH student

DH 3134. Pediatric Dentistry. (; 1 cr. ; A-F or Audit; Every Summer)
Knowledge, skills, and attitudes required for providing dental hygiene care for pediatric patients. prereq: DH student

DH 3151. Oral and Maxillofacial Radiology. (; 2 cr. ; A-F or Audit; Every Spring)
General principles of radiology, radiation physics, dosimetry, biology, radiation protection, regulations, recent concepts of imaging, and radiographic anatomy. prereq: DH student

DH 3191. Independent Study. (; 0 cr. ; Student Option; Every Spring & Summer)
Clinical experience in dental hygiene care. prereq: DH student

DH 3211. Biomaterials and Principles of Restorative Techniques I. (; 4 cr. [max 8 cr.] ; A-F only; Every Summer)
This course is for dental hygiene students to learn theory and ?hands on? practice of dental restorative materials. Students will practice the manipulation and placement of various dental materials in permanent and primary typodont prepared teeth, and they will also learn and practice the selection process and placement of stainless steel crowns on primary typodont teeth. prereq: DH student

DH 3224W. Dental Hygiene Care Process: Clinical Application IV. (WI; 6 cr. ; A-F only; Every Fall)
Knowledge, skills, and attitudes required for providing dental hygiene care for the medically compromised patient, gerodontic patient, and patient with a disability. prereq: Dental hygiene student

DH 3227. Oral and Maxillofacial Radiology Clinic II. (; 0 cr. ; A-F or Audit; Every Fall)
Exposing patient radiographs, interpretation, panoramic/extraoral technique, and quality assurance procedures. prereq: DH student

DH 3228. Ethics and Jurisprudence for the Dental Hygienist. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Ethical decision making, jurisprudence. prereq: Dental hygiene student

DH 3234. Oral and Maxillofacial Radiology: Theory, Principles, and Radiographic Analysis. (1 cr. ; A-F only; Every Fall)
Intraoral and extraoral radiographic anatomy. Principles of radiographic interpretation, evaluation of radiographs to identify variation of normal, and dental and maxillofacial diseases.

DH 3238. Dental Public Health and Academic Service Learning. (; 3 cr. ; A-F only; Every Fall)
EThis course provides an overview of the discipline of public health including epidemiological methods of investigation with an emphasis on patterns of oral diseases. Course content emphasizes designing, implementing, and evaluating oral health promotion and health education programs. Students prepare for community service learning programs. prereq: Dental Hygiene Student

DH 4105. Dental Professional Development. (1 cr. ; A-F only; Every Spring)
Dental Hygiene Course Description Skills to effective practice management and strategic decision-making, promoting mutual trust and respect in all interpersonal interactions, with an emphasis on the roles of a collaborative dental team. Dental Therapy Course Description Interprofessional course. Organizational, managerial, and financial systems that affect successful dental practice.

DH 4125W. Dental Hygiene Care Process: Clinical Application V. (DSJ,WI; 6 cr. ; A-F only; Every Spring)
TSocial justice of health/oral health care in U.S. How race/class/gender impact resources.? Dental hygiene treatment in diverse patient population.

DH 4135W. Research Methods in Dental Hygiene. (WI; 3 cr. ; A-F only; Every Spring)
Develop skills in the scientific method and critiquing scientific literature. Emphasis is place on evidence-based decision-making, types of research and research design, problem identification and hypothesis development, analyzing individual components of journal articles in relation to research principles, and writing the literature review. Fulfills writing intensive requirement. prereq: DH

DH 4136. Periodontology III Lecture. (; 1 cr. ; A-F or Audit; Every Spring)
This course will provide information regarding the surgical phase of periodontal therapy, including select topics in implantology. The course also emphasizes the evaluation of periodontal treatment, periodontal maintenance care, and the relationship between periodontics and other disciplines in dentistry. Use of pharmacological agents, periodontal medicine, clinical research and integrating periodontics into the general practice also are covered.

DH 4139. Dental Public Health and Academic Service Learning II. (; 2 cr. ; A-F only; Every Spring)
Academic service learning in various community healthcare settings. The student will apply information from Dental Public Health & Service Learning I and II to assess, plan, implement, and evaluate a dental public health program designed to meet the oral health needs of a priority population.

DH 4191. Independent Study. (; 0-6 cr. ; Student Option; Every Fall, Spring & Summer)
Individually arranged study, instruction, or research with faculty to meet student needs/ interests. prereq: DH student

DH 4211. Principles of Restorative Techniques II. (; 3 cr. ; S-N only; Every Summer)
Restorative Techniques. Clinical experiences.

DH 4226. Dental Hygiene Care Process Clinical Application VI. (6 cr. ; A-F only; Every Spring & Summer)
Advanced dental hygiene care process in Comprehensive Care Clinics and Service Learning Outreach sites. Development and presentation of the Senior Capstone experiences. The Capstone is a comprehensive oral case presentation and writtencase report based on a unique patient experience and treatment.

DH 4234. Leadership and Professional Development. (; 2 cr. ; A-F only; Every Summer)
Explore the dental hygienist as leader and manager in healthcare delivery organizations or public health organizations and programs. A study of current issues that influence the practice of dental hygiene including healthcare delivery systems, workforce needs, practice models, regulation, professional associations, state practice acts and the legislation process. Emphasis on leadership and professional development.

DH 5201. Management Internship. (; 5 cr. ; S-N only; Every Fall, Spring & Summer)
Supervised experience in oral health care industry. Experience in corporations, health care management organizations, long-term care facilities, publishing firms, or professional organizations. An internship is required (minimum 14 weeks). prereq: Dental hygiene grad student

DH 5203. Capstone Project. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Formulation of extensive business plan/project related to area of interest based on coursework taken or internship experience. prereq: Dental hygiene grad student

DH 5401. Research Methods in Health Sciences. (3 cr. ; A-F only; Every Summer)
Developing skills in scientific method. Analyzing research findings. Types of research, problem selection, hypothesis writing, research planning/design, data collection/measuring techniques, analysis/interpretation of data. Ethics. prereq: Dental hygiene grad student

DH 5403. The Discipline of Dental Hygiene. (; 2 cr. ; A-F only; Every Summer)
Dental hygiene practice grounded in science and guided by research evidence. Etiology, prevention, and treatment of dental caries, periodontal diseases, oral cancer, and other conditions. Advances in technology. prereq: Dental hygiene grad student

DH 5405. Curriculum and Course Development. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall)
Curriculum/course development/management, competency-based education/outcomes assessment. Role of accreditation in dental hygiene education. Students develop competency-based dental hygiene curriculum/ course. prereq: Dental Hygiene grad student

DH 5407. Instructional Strategies for Effective Teaching. (; 2 cr. ; A-F only; Every Fall)
Application of principles of learning. Learning/teaching styles, student-centered teaching, instructional strategies. Microteaching selected strategies. prereq: Dental hygiene grad student

DH 5409. Dental Hygiene Clinic Administration. (; 2 cr. ; A-F only; Every Spring)
Theory/practice of dental hygiene preclinic/clinic instruction. Administration of clinic. Developing protocols, calibrating faculty, monitoring student progress. Central Regional Dental Testing Service exam, clinic evaluation mechanisms, quality assurance. prereq: Dental hygiene grad student

DH 5411. Administrative Leadership and Professional Development. (2 cr. ; A-F only; Every Spring)
Application of leadership theory. Models of administrative roles in education, health care, research, and corporate health care settings. Education/organization culture, strategic planning, human resource management/budgeting. Professional development/advancement. prereq: Dental hygiene grad student

DH 5413. Dental Hygiene Supervised Clinic Student Teaching. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Observation/participation in supervised clinical teaching experiences in dental hygiene education. Psychomotor skill acquisition. Process of care. Feedback. Question asking. Evaluation of clinical skills. Ethical/legal issues.

DH 5415. Dental Hygiene Supervised Didactic Course Student Teaching. (2 cr. [max 4 cr.] ; A-F only; Every Fall, Spring & Summer)
Observation/participation in supervised teaching experience in dental hygiene education under faculty mentorship.

DH 5420. Master of Dental Hygiene Independent Study. (; 0-5 cr. [max 10 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Directed study with dental hygiene faculty member on selected topic. prereq: Enrolled master of dental hygiene student

DH 5421. Grant Writing for Health Professionals. (1 cr. ; A-F only; Every Spring)
Introduction to grant writing for health care professionals. Grant sourcing, matching goals/objectives to funding sources, developing evaluation plan, writing proposals, responding to critiques. Effect of economic environment/social responsibility of non-profits. prereq: Enrolled in Dental Hygiene grad program

Dental Therapy (DT)

DT 4415. Essentials of Clinical Care I: Introduction. (; 1 cr. ; S-N only; Every Fall)
This course will introduce DT4 dental therapy students to the dental therapy clinically related scope of patient care under the direction and supervision of experienced clinical faculty. This course will monitor and grade progression in clinics each semester. Evaluation will be based on feedback from dental therapy faculty, group leaders and the Competency Review Board.

DT 4460. Essentials of Clinical Care I For the Dental Therapist. (3 cr. ; S-N only; Every Spring)
Students provide comprehensive care under direction of clinical faculty. May include periodontics, operative, pediatric care, and health promotion. Limited care may be given on rotations to oral surgery clinics.

DT 4965. Essentials of Clinical Care for the Dental Therapist III. (4 cr. ; S-N only; Every Summer)
This course will continue to prepare DT4 dental therapy students in the dental therapy clinically related scope of patient care under the direction and supervision of experienced clinical faculty. This course will monitor and grade progression in clinics each semester. Evaluation will be based on feedback from dental therapy faculty, group leaders, and the Competency Review Board.

DT 4994. Dental Therapy Directed Research. (1-7 cr. [max 35 cr.] ; S-N only; Every Fall, Spring & Summer)
Field investigation of selected areas of research.

DT 5005. Dental Therapy Capstone Project I. (1 cr. [max 2 cr.] ; S-N only; Every Fall)
The main purpose of the Capstone courses is to provide a culminating, integrative scholarly experience for students enrolled in the Dual Degree BSDH/MDT program. As such, in addition to utilizing knowledge gained throughout the 8-semester program, the course draws specifically on students? prior training in Research and Dental Public Health. The course allows students to pursue an independent, project-based topic from one of their interests in the field of oral health. The course is intended to be an intensive, active-learning project, requiring significant effort in the planning and implementation, as well as preparation of a substantial final written product and oral presentation. A Capstone is a systematic investigation of a subject including library and/or original research. Projects are intended to assimilate knowledge gained in courses in order to create a comprehensive, original project. While Capstone projects provide invaluable preparation for professional careers, students report that the primary rewards are intrinsic: the opportunity to follow one?s curiosity, to take ownership of a project and see it through to a successful conclusion, the intellectual and creative pleasure of independent learning, and the mentorship by one?s advisor. Because the written portion of the project is generally quite long, it is essential to devote substantial time to the research and writing of the paper. However, learning to be concise is a valuable skill to master.

DT 5135. Preclinical Pediatric Dentistry. (2 cr. ; A-F only; Every Spring)
Childhood development and care of children. Restorative dentistry for children/adolescents. Behavior management techniques. Issues that arise in dental health care setting. Lab. Prereq-DT grad program.

DT 5140. Preventive Pediatric Dental Clinic. (1 cr. ; A-F only; Every Fall)
Oral health promotion of pediatric patients. Brushing techniques, fluoride application, dietary analysis/counseling. Students interact with parents of pediatric patients.

DT 5141. Clinical Pediatric Dentistry III. (; 2 cr. ; A-F only; Every Spring)
Early childhood development, dental care for children. prereq: Must be in the dental therapy program, passed basic foundation competencies

DT 5162. Principles of Exodontia and Minor Oral Surgery. (1 cr. ; A-F only; Every Fall & Spring)
Develop knowledge/skill for exodontia/minor oral surgery.

DT 5205. MDT Clinical Correlations. (; 1 cr. ; S-N only; Periodic Summer)
Provide MDT students with clinically-based educational opportunities during the mandated clinic closure due to the COVID-19 pandemic.

DT 5241. Oral Radiology Clinic II. (; 1 cr. ; A-F only; Every Fall)
Clinical instruction in oral radiography. Intraoral/extraoral radiographic procedures, evaluations. prereq: Must be in dental therapy masters program

DT 5320. Comprehensive Care Clinic. (; 4 cr. ; S-N only; Every Spring)
Assessment, treatment, and management of patients. Concepts/principles of evidence-based dentistry as applied to clinical practice.

DT 5321. Treatment Planning for the Dental Therapist. (1 cr. ; S-N only; Every Fall, Spring & Summer)
Formal lecture presentations regarding fundamentals of assessment/treatment planning of dental cases. Prepare student to understand University of Minnesota School of Dentistry protocol in development of optimal, alternative, emergency treatment plans.

DT 5360. Outreach Experiences I. (1 cr. ; S-N only; Every Fall)
Students work in clinics outside of U of M with underserved patients.

DT 5361. Outreach Experiences II. (2 cr. ; S-N only; Every Fall, Spring & Summer)
Experiences that reinforce principles of delivering dental health care/services to patients, including underserved patient populations, in contemporary off-site clinical settings.

DT 5410. Biomaterials Science I. (1 cr. ; A-F only; Every Spring)
Application of scientific principles to selection/utilization of dental materials. Prereq-2nd yr DT student.

DT 5429. Introduction to Psychomotor Skill Development. (1 cr. ; S-N only; Every Fall)
Virtual reality based training for psychomotor skills required in prosthodontic/operative courses. Eye-hand/mirror skills, ergonomics used while preparing teeth for restoration. Prereq-In dental therapy program.

DT 5430. Oral Anatomy. (; 2 cr. ; A-F only; Every Fall)
Morphological characteristics of human dentition, associated contiguous structures. Foundational knowledge applied to situations encountered in general dental clinical practice. prereq: Accepted into dental therapy masters program

DT 5431. Oral Anatomy Laboratory. (; 3 cr. ; A-F only; Every Fall)
Manual dexterity skills, anatomy of human dentition. prereq: Accepted into masters in dental therapy program

DT 5432. Operative Dentistry I. (; 1 cr. [max 2 cr.] ; A-F only; Every Fall, Spring & Summer)
How to treat dental caries. Therapeutic treatment of underlying pathology. Surgical treatment of early caries lesion.

DT 5433. Operative Dentistry I Pre-Clinic Laboratory. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
How to treat dental caries. Therapeutic treatment of underlying pathology. Surgical treatment of early caries lesion. Hands-on projects working with models simulating teeth and surrounding structures. prereq: 2nd yr masters in dental therapy student

DT 5434. Operative Dentistry II Lecture. (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
How to surgically manage more advanced caries lesions. Transition from pre-clinic lab to clinic setting. prereq: Enrolled in master's in dental therapy program

DT 5435. Operative Dentistry II for the Dental Therapist, Lab. (1 cr. ; A-F only; Every Fall, Spring & Summer)
More advanced caries lesions: diagnosis, structural preparation, decay removal and restoration.

DT 5443. Operative Clinic III. (4 cr. ; A-F only; Every Spring)
How to place restorations. Students place single-tooth restorations on patients.

DT 5465. Essentials of Clinical Care for the Dental Therapist IV. (10 cr. [max 12 cr.] ; S-N only; Every Fall)
This course will continue to prepare MDT dental therapy students in the dental therapy clinically related scope of patient care under the direction and supervision of experienced clinical faculty. This course will monitor and grade progression in clinics each semester. Evaluation will be based on feedback from dental therapy faculty, group leaders, and the Competency Review Board.

DT 5471. Prosthodontic Topics for Dental Therapy. (2 cr. ; A-F only; Every Summer)
Lectures, lab projects of selected prosthodontic techniques to enable the dental therapist to provide/cement quality pre-fabricated metal or resin provisional crowns and other prosthodontic procedures in the scope of DT practice.

DT 5960. Essentials of Clinical Care II for the Dental Therapist. (5-10 cr. [max 20 cr.] ; S-N only; Every Summer)
Students provide comprehensive care under direction of clinical faculty. May include periodontics, operative, pediatric care, and health promotion. Limited care may be given on rotations to oral surgery clinics.

Design (DES)

DES 1000. D@MN: Design@Minnesota. (AH; 3 cr. ; A-F only; Every Fall & Spring)
In DES 1000, students learn to use an iterative design process to define real-world challenges, and propose innovative solutions for social impact. Building soft-skills such as collaboration, visual and verbal communication, and empathy is a critical outcome of the course.

DES 1001. Introducing the College of Design. (1 cr. ; A-F only; Every Fall & Spring)
DES 1001 Is a 1 cr. topics course. This course provides a set of experiences that help to explain the concepts of design through the lenses of different fields of design, both traditional and emerging, within the College of Design. Students from various design disciplines will engage in design experiences that teach them how designers from different fields identify, define and solve problems. They will be introduced to the resources offered to designers in the College of Design through hands-on experiences. Students will reflect upon their experiences by participating in a series of experiences, by submitting a series of reflection pieces, and completing a culminating project that will be shared with class members and invited stakeholders. Through this engagement, students will learn about each other and their motivations for being in the College of Design, as well as gain an understanding of the breadth of the college and its resources as they begin their design education.

DES 1002. Improvisation for Design. (3 cr. ; A-F only; Every Spring)
This course explores how the art of improvisation can build collaboration, communication, and creativity skills. In this class we will focus on how improvisation is applied to fields of design, however these skills may be applicable to other disciplines. Through both readings and an interactive curriculum of improv exercises, students will learn specific tools to facilitate idea generation, collaborative team processes, idea selection, sketching and critique.

DES 1101V. Honors: Introduction to Design Thinking. (AH,WI; 4 cr. ; A-F only; Every Fall)
Theories/processes that underpin design thinking. Interactions between humans and their natural, social, and designed environments where purposeful design helps determine quality of interaction. Design professions. prereq: Honors student

DES 1101W. Introduction to Design Thinking. (AH,WI; 4 cr. ; A-F only; Every Fall & Spring)
Theories/processes that underpin design thinking. Interactions between humans and their natural, social, and designed environments where purposeful design helps determine quality of interaction. Design professions.

DES 1111. Creative Problem Solving. (; 3 cr. ; A-F only; Every Fall & Spring)
Development of creative capability applicable to all fields of study. Problem solving techniques. Theory of creativity/innovation.

DES 1111H. Honors: Creative Problem Solving. (; 3 cr. ; A-F only; Every Fall)
Development of creative capability applicable to all fields of study. Problem solving techniques. Theory of creativity/innovation. prereq: Honors

DES 1170. Topics in Design. (; 1 cr. [max 4 cr.] ; A-F or Audit; Periodic Fall & Spring)
In-depth investigation of specific topic, announced in advance.

DES 1902. Modern Chinese Fashion. (; 3 cr. [max 9 cr.] ; A-F only; Periodic Fall & Spring)
This seminar provides a comprehensive account of modern Chinese fashion from the beginning of the twentieth century to the present day with an emphasis on the post-Mao era. It offers a concentrated study of the development of the Chinese fashion industry, fashion systems, the roles of Chinese designers and models, and luxury brands in China, as well as an analysis of the relationship between dress, gender, identity, consumption, and pop culture in modern China. Students will critically evaluate how fashion has mirrored the social and cultural changes that have taken place in modern China, and to what extent fashion has contributed to those changes. Students will reflect on the Chinese ways of fashion thinking and practices for the international community, the US, and for their own professions.

DES 1905. Visual Literacy. (; 3 cr. ; A-F only; Every Fall & Spring)
In the 21st Century, Visual Literacy is as vital for success as verbal literacy. The course will involve making, writing, and viewing in the pursuit of visual literacy, with expeditions to museums as well as discussion of the concepts of visual literacy. Through a combination of collaborative, hands on, and design activities, we will critically view, use, and produce visual content. The course will examine and apply the definitions and concepts of visual literacy, the impact of visual images on our culture, the creation and use of communication visuals, and developing critical viewing skills.

DES 2101. Design and Visual Presentation. (; 2 cr. ; A-F only; Every Fall & Spring)
Introduction to visual design. Development of visual design skills. Visual presentation methods. Lectures, design exercises, discussion.

DES 3131. User Experience in Design. (4 cr. ; A-F only; Every Fall)
Introduction to theories/principles of human interaction with designed objects. Focuses on affect/emotional quality of designs. Objects, interfaces, environments. Digitally mediated experiences.

DES 3132. Service Design Studio. (3 cr. ; A-F or Audit; Every Fall)

Systems-based approach towards service design. Course emphasis placed on the articulation of a service through concept mapping, blueprints, and user touch points.

DES 3133. Capturing Greece: Color, Light, and Form. (AH; 3 cr. [max 18 cr.] ; A-F only; Every Summer)
Greece provides a unique cultural environment in which to explore color, light, and form. Students will immerse themselves in a climate of light and form by observing and experiencing water, stone, and structure in a fresh way. Students will explore ancient architectural forms, uniquely evolved historic villages, and references to mythological and symbolic imagery. This course will provide students with an opportunity to develop creative thinking and practice as well as build visual acuity. Students will examine color theory and the history of BLUE while studying creative thought processes. Drawing and Watercolor are the vehicles through which the majority of this learning occurs.

DES 3141. Technology, Design, and Society. (TS; 3 cr. ; A-F only; Every Spring)
Explore/evaluate impact of technology/design on humans, societies. How design innovation shapes cultures. How people use technology to shape design, adoption, use of designed products/environments through consumerism/ethical values.

DES 3151. Italian Design Studio: Blending Tradition and Innovation. (GP; 3 cr. ; A-F only; Every Summer)
DES 3151 Italian Design Studio: Blending Tradition and Innovation exposes students to the productive intersection of ideas using the city of Rome and its makers as inspiration and context for interdisciplinary design work. The study abroad studio course is submitted to the Council on Liberal Education for approval for a Global Perspectives Theme. Italian Design Studio meets general Core course requirements in the following ways: ENHANCING A LIBERAL EDUCATION Students in this course exercise design as a mode of thinking and practice in an interdisciplinary context. Design thinking is, at its essence, critical thinking for the material world. Design is a process of analyzing, interpreting and evaluating information from multiple viewpoints, and iteratively developing a response that synthesizes this information into a cohesive solution. Design projects never have a "right answer." Instead, students come to learn that "good design" emerges from a rigorous, creative and critical process of seeing design problems as design opportunities. In this way, design studio and design thinking have an intriguing synergy with the values of a liberal education. A liberal education prepares students to engage a complex, diverse and changing world by seeing problems from multiple viewpoints. Design problems are complex by nature and require expansive thinking. Students who think like designers actively seek a variety of perspectives and intentionally zoom in and out to see a problem at a range of scales and in a shifting context. Students who think like designers are naturally curious about almost everything, and see inspiration and opportunity everywhere. Immersion in another culture naturally piques curiosity and presents an immediate challenge to practice seeing (things and processes big and small) from other perspectives. A liberal education prepares students to critically evaluate information and integrate knowledge. From a liberal investigation, students who think like designers begin to discern what is important, relevant and interesting from what is less important, less relevant and less interesting. Designers understand where conditions are fixed and where they have agency to make design decisions. Because the design process is both generative and iterative, integrating new knowledge and reevaluating what is valuable in the investigation is ongoing. While the design process is not a linear one, students in this course do learn that it is nonetheless rigorous, involving the art of opening up a problem, synthesizing a multitude of forces, and working within constraints. A liberal education prepares students to engage the world as informed, ethical citizens. Design and making are deeply human endeavors that addresses who we are as physical, psychological, social, political and spiritual beings in relationship with the constant, changing and limited resources of our planet. Students in this course learn how the particular circumstances of time and place can have dramatic implications for our designed environment, from the scale of objects to the scale of cities. A liberal education prepares students to value diverse ways of knowing and modes of inquiry. Designing the material world?whether apparel, graphic, landscape architecture, architecture or interior design?invites a fusion of art and science. As a mode of inquiry, students in this course pursue design thinking as a rigorous and analytical process with a role for intuition and creativity. Designed objects and places express cultural aspirations and makes our experiences with the physical world poetic. In this way, de is allied with other arts and humanities disciplines. Yet, all designed things are beholden to a host of constraints or forces that lie beyond the control of the designer. Architecture, for example, must accommodate human behavior and needs, must shelter in a particular climate, and must respond to the laws of materials and gravit

DES 3160. Topics in Design. (; 1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics in Design.

DES 3170. Topics in Design. (; 1-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
In-depth investigation of specific topic.

DES 3196. Field Study: National or International. (; 1-10 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Faculty-directed field study in national or international setting.

DES 3201. Career and Internship Preparation for Design. (1 cr. ; A-F only; Every Fall & Spring)
Research career opportunities and organizations related to industry. Set career goals based on skills and interests. Identify job search skills to secure internships, implement transition from college to employment. prereq: Pre-graphic design or graphic design or pre-interior design or interior design or pre-apparel design or apparel design or environmental design or architecture or product design

DES 3250. Topics in Design. (; 1-4 cr. ; A-F only; Periodic Summer)
Topics in Design

DES 3309. Storytelling and Design. (3 cr. ; A-F only; Every Fall & Spring)
Students will uncover elements of storytelling within the design process and investigate different modes of shaping narrative. We will be experimenting with various media, including 2D design and mapping, audio, video, social platforms, augmented reality, and online environments.

DES 3311. Travels in Typography. (3 cr. ; A-F only; Every Fall & Spring)
Using collection in James Ford Bell Library, students study rare book/map collections and undertake hands-on exercises on history of type, including developments in typesetting, calligraphy, and letterpress printing.

DES 3321. Furniture Design: Exploration. (3 cr. ; A-F only; Every Fall)
Furniture design as discipline, not as method. Material. Objects that mediate our environment. History, design criteria, technology, craft. Group case study, research presentation, individual making/presenting of concept-prototype.

DES 3322. Furniture Design, Practice. (4 cr. ; A-F only; Every Fall & Spring)
The hardest things about the creative act is learning how to start something before you know what it is. The simplest objects are always more formally complex than the mind can accurately imagine. This course teaches design thinking through furniture constructed using a fast, loose & ad-hoc "children-club-fort-building" method of discovering & visualizing while making. Direct-construction design is tangibly satisfying and will provide powerful context for all other scales of creative, design and planning methods. Your results will not be conventionally good-looking, but you will make real & functioning cultural things. All exercises will be dependent on connecting to ideas beyond commonly recognized boundaries of the furniture. Think "Chair-ness, not Chair." You will be taught basic welding and wood joinery to provide fast & viable structural frames, "surfacing" methods in wood, foam and fabric composites, and an introduction to mold making and material casting. You do not need to be good at making, but you must be game to try. Craft is important so-far as basic structural usability is attained. Ideas will always trump material "correctness."

DES 3331. Street Life Urban Design Seminar. (3 cr. ; A-F only; Every Spring)
The street as part of network of urban systems/fragments: sidewalks, private interiors, curbs,

terraces, boulevards, parking lots, bus stops, public institutions, urban architectures, utility lines, storm/sewer systems, groundwater, satellite communication systems, gardens, and lighting. Readings in urban studies, geography, design, economics and art history. Students review case studies, envision possible transformations of streets/street life.

DES 3351. Phenomenon of Everyday Design. (3 cr. ; A-F only; Every Spring)
Examines the growing fascination with design in everyday life. From Target to IKEA, from TIME magazine to the New York Times Sunday supplement, interest in the designer and designed object are permeating popular culture. Implications of this phenomenon in the present and historical precedents for the "design in everyday life" concept.

DES 4160. Topics in Design. (; 1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
In-depth investigation of single specific topic announced in advance.

DES 4165. Design and Globalization. (DSJ; 3 cr. ; A-F or Audit; Every Fall)
The course explores how culture, identity, and difference are defined and produced and the role that design plays in the production of difference, inequality, and marginalization. prereq: Jr or sr

DES 4193. Directed Study in Design. (; 1-6 cr. [max 36 cr.] ; A-F only; Every Fall, Spring & Summer)
Directed Study in Design prereq: dept consent

DES 5160. Topics in Design. (; 1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics in design

DES 5165. Design and Globalization. (; 3 cr. ; A-F or Audit; Every Fall)
The course explores how culture, identity, and difference are defined and produced and the role that design plays in the production of difference, inequality, and marginalization. prereq: Grad student

DES 5168. Evidence-Based Design. (; 3 cr. ; A-F or Audit; Every Fall)
Origins of evidence-based design/possible benefits and detractors. Students learn various components as a process/ explore methods of integrating process via application to a design project in their area of expertise. Process, impact, influences, and anticipated outcomes are documented/ analyzed as compared to a typical design process approach. prereq: CDes grad student or instr consent

DES 5170. Topics in Design. (; 3 cr. [max 24 cr.] ; A-F or Audit; Periodic Fall)
In-depth investigation of single specific topic, announced in advance.

DES 5185. Human Factors in Design. (; 3 cr. ; A-F or Audit; Periodic Fall)
Theories/methods that influence the assessment of physical, social, and psychological human factors. Development of user needs with application to designed products that interact with human body. prereq: Grad student or sr or instr consent

DES 5188. Anthropometrics, Sizing & Fit. (4 cr. ; A-F only; Periodic Fall & Spring)
Comprehensive attention to ergonomics and anthropometric variance across populations is crucial to the advancement of wearable products and apparel. This course will examine the relationship between body size, body shape, product design, sizing systems, and fit. Students will examine existing sizing systems and develop new sizing systems using anthropometric data, body scan technology, and OptiTex 3D patternmaking software.
A special focus will be given to examining innovative tools that encourage the merging of anthropometrics and design throughout the design process. This class is suitable for students across a variety of disciplines.

DES 5193. Directed Study in Design. (; 1-6 cr. [max 36 cr.] ; A-F only; Every Fall, Spring & Summer)
Directed Study in Design prereq: dept consent

DES 5196. Field Study: National/ International. (; 1-10 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Faculty-directed field study in a national or international setting.

DES 5901. Principles of Wearable Technology. (2 cr. ; A-F only; Every Spring)
Exploration of technologies, theories, and best practices for designing and developing systems incorporating wearable technology. This lecture-based class will introduce students to the physical principles that underlie many wearable technology subsystems, will discuss design approaches that conscientiously consider user experience and wearability in systems design. This course is an introductory course that focuses on wearable technology concepts blending User-Centered Design with Engineering Systems development. It is intended to be approachable for students with a wide variety of interests and backgrounds. Course material is explored through readings, lectures, discussions, and course projects. Optional laboratory course (DES.5902) provides hands-on opportunities to put these principles into practice.

DES 5902. Wearable Technology Laboratory Practicum. (2 cr. ; A-F only; Every Spring)
Laboratory session to develop skills in building and testing wearable technology systems. The student must be enrolled concurrently with DES 5901 (Principles of Wearable Technology). Students will be provided opportunities for hands-on prototyping to gain a practical appreciation for the challenges related to wearable systems development. Course material is explored through laboratory sessions and course projects.

Dutch (DTCH)

DTCH 1001. Beginning Dutch. (; 5 cr. ; Student Option; Every Fall & Summer)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.).

DTCH 1002. Beginning Dutch. (; 5 cr. ; Student Option; Every Spring & Summer)
Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and Dutch culture. prereq: 1001

DTCH 1003. Intermediate Dutch. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. prereq: 1002

DTCH 1004. Intermediate Dutch. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. prereq: 1003

DTCH 3011W. Conversation and Composition. (WI; 3 cr. ; Student Option; Every Fall)
Practice/refinement of spoken/written Dutch. Composition, vocabulary. Reading, viewing, and discussion of Dutch/Flemish media reports. Grammar review, critical corrective grammatical skills. prereq: 1004 or 4004 or instr consent

DTCH 3012. Conversation and Composition. (; 3 cr. ; Student Option; Periodic Spring)
Practice and refinement of spoken and written Dutch. Compositional skills, vocabulary. Reading, viewing, and discussion of Dutch and Flemish media reports. Grammar review. Development of critical corrective grammatical skills. prereq: 3011 or 4011

DTCH 3610. Dutch Literature in Translation. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Spring)
In-depth study of authors or topics from various periods in Dutch literature. All primary/ secondary literature is read in English translation.

DTCH 3993. Directed Studies. (1-5 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided reading in or study of Dutch literature, culture, or advanced language skills. Prereq- instr consent, dept consent, college consent.

DTCH 4001. Beginning Dutch for Graduate Research. (; 5 cr. ; Student Option; Every Fall & Summer)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.). Meets concurrently with 1001.

DTCH 4002. Beginning Dutch for Graduate Research. (; 5 cr. ; Student Option; Every Spring & Summer)

Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and Dutch culture. Meets concurrently with 1002.

DTCH 4003. Intermediate Dutch for Graduate Research. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. Meets concurrently with 1003.

DTCH 4004. Intermediate Dutch for Graduate Research. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. Meets concurrently with 1004.

DTCH 4011. Conversation and Composition for Graduate Research. (; 3 cr. ; Student Option; Every Fall)
Practice/refinement of spoken/written Dutch. Composition, vocabulary. Reading, viewing, and discussion of Dutch/Flemish media reports. Grammar review, critical corrective grammatical skills. Meets with 3011W.

DTCH 4012. Conversation and Composition for Graduate Research. (; 3 cr. ; Student Option; Periodic Spring)
Practice/refinement of spoken/written Dutch. Compositional skills, vocabulary. Reading, viewing, and discussion of Dutch/Flemish media reports. Grammar review. development of critical corrective grammatical skills. Meets with 3012. prereq: 3011 or 4011

DTCH 5993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq-instr consent, dept consent, college consent.

Early Modern Studies (EMS)

EMS 5500. Topics in Early Modern Studies. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Selected topics in early modern studies from various disciplinary perspectives/world regions. prereq: Grad student

Earth Sciences (ESCI)

ESCI 1001. Earth and Its Environments. (ENV,PHYS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Physical processes that shape the Earth: volcanoes, earthquakes, plate tectonics, glaciers, rivers. Current environmental issues/ global change. Lecture/lab. Optional field experience.

ESCI 1003. Dinosaurs and Our World. (BIOL,ENV; 4 cr. ; Student Option; Every Spring)
Dinosaur evolution, ecology, and extinction. Evolution of modern ecosystems from the Mesozoic Era to the Anthropocene (and dinosaurs roles in that evolution). Human interactions with our environment and our roles as historic agents. Structure and function of biological forms, interpreting past life, and the social history of scientific inquiry.

ESCI 1005. Geology and Cinema. (ENV,PHYS; 4 cr. ; Student Option; Every Spring)
Physical processes shaping the Earth, materials it comprises, its nearly five billion year history as told spectacularly, but often wrongly, by Hollywood movies.

ESCI 1006. Oceanography. (ENV,PHYS; 4 cr. ; Student Option; Every Fall)
How various processes in the ocean interact. Marine biology, waves, tides, chemical oceanography, marine geology, and human interaction with the sea. Labs include study of live marine invertebrates, manipulation of oceanographic data, and discussion using videos showing unique aspects of ocean research.

ESCI 1007. From Microbes to Mammoths: History of Life on Earth. (BIOL; 4 cr. ; Student Option; Every Fall)
Scientific evidence from biology, paleontology, and geology for origin/evolution of life over 4.5 billion years of Earth's history. Biochemical basis of life, biogeochemical cycles, natural selection, origin of species, genetics, phylogeny reconstruction, timescales for evolution.

ESCI 1012. Natural Disasters. (TS; 3 cr. ; Student Option; Every Fall & Spring)
Geological processes that give rise to natural hazards and the emerging technologies that allow societies to mitigate their effects.

ESCI 1101. Introduction to Geology (lecture only). (ENV; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Physical processes that shape the Earth: volcanoes, earthquakes, plate tectonics, glaciers, rivers. Current environmental issues and global change. Lecture.

ESCI 1105. Geology and Cinema (lecture only). (ENV; 3 cr. ; Student Option; Every Spring)
Physical processes shaping the Earth, materials it comprises, its nearly five billion year history as told spectacularly, but often wrongly, by Hollywood movies.

ESCI 1106. Oceanography. (ENV; 3 cr. ; Student Option; Every Fall)
How various processes in the ocean interact. Marine biology, waves, tides, chemical oceanography, marine geology, human interaction with sea.

ESCI 1201. Into Earth Sciences Lab. (PHYS; 1 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
ESCI 1201 is simply the same suite of laboratory explorations that comprise the lab component of ESCI 1001. ESCI 1201's only purpose is to allow students who have previously taken ESCI 1101 (the lecture-only equivalent of ESCI 1001) to combine ESCI 1101 and ESCI 1201 to complete the standard ESCI 1001 class in order to satisfy LE requirements as a Physical Science (students who completed ESCI 1101 have already fulfilled the requirements for the Environment theme). ESCI 1201 is only available to students who have previously taken ESCI 1101, it cannot be taken as a stand-alone course. Please refer to ESCI 1001 for an equivalent description of the combined ESCI 1101/1201 program.

ESCI 1205. Geology and Cinema Lab. (PHYS; 1 cr. ; Student Option No Audit; Every Spring)
ESCI 1205 is simply the same suite of laboratory explorations that comprise the lab component of ESCI 1005. ESCI 1205's only purpose is to allow students who have previously taken ESCI 1105 (the lecture-only equivalent of ESCI 1005) to combine ESCI 1105 and ESCI 1205 to complete the standard ESCI 1005 class in order to satisfy LE requirements as a Physical Science (students who completed ESCI 1105 have already fulfilled the requirements for the Environment theme). ESCI 1205 is only available to students who have previously taken ESCI 1105, it cannot be taken as a stand-alone course. Please refer to ESCI 1005 for an equivalent description of the combined ESCI 1105/1205 program.

ESCI 1206. Oceanography Lab. (PHYS; 1 cr. ; Student Option No Audit; Every Fall)
ESCI 1206 is simply the same suite of laboratory explorations that comprise the lab component of ESCI 1006. ESCI 1206's only purpose is to allow students who have previously taken ESCI 1106 (the lecture-only equivalent of ESCI 1006) to combine ESCI 1106 and ESCI 1206 to complete the standard ESCI 1006 class in order to satisfy LE requirements as a Physical Science (students who completed ESCI 1106 have already fulfilled the requirements for the Environment theme). ESCI 1206 is only available to students who have previously taken ESCI 1106, it cannot be taken as a stand-alone course. Please refer to ESCI 1006 for an equivalent description of the combined ESCI 1106/1206 program.

ESCI 1902. Geology of Minnesota. (ENV; 3 cr. ; Student Option; Every Fall)
This course addresses important societal questions, such as "Where does my drinking water come from? Do I really need to buy bottled water? What should my stand be regarding major water-related environmental issues in Minnesota?" In this course, we will explore the world around us, and apply what we learn to better contribute to the solutions we will need as a society to deal with impacts on water quality and quantity due to factors such as agriculture, flood control, groundwater pumping, hydroelectric power, integrity of surface water features, interbasin transfers, invasive biota, mining, and shipping. In doing so, we will explore ways for everyone to better take responsibility for their role in optimizing public health, maximizing economic benefits,

maintaining biodiversity, and protecting the integrity of surface water features on our landscape. Emphasis will be placed on how our choices and solutions will in the long term affect our principal drinking water source--the groundwater that is hosted in ancient rocks in the north and in the deep subsurface, younger limestone and sandstone in the south, and the sediments of the most recent Ice Age from which our soils have formed. A full-day field trip planned for a Saturday in September will examine how societal choices affect our use of and protection of water resources in our rivers and lakes, and a second full-day trip on a Saturday in October will address the same issues in relation to our largest source of drinking water--our wells. Those unable to attend a field trip may instead prepare a paper.

ESCI 1908. Sea Change: Geological Perspective. (; 2 cr. ; A-F only; Periodic Spring)
Paleoceanography is the study of the environmental history of the planet from records of ancient oceans. This seminar course is intended for first-year students who are interested in understanding how and why the planet has changed in the geologic past and learning how scientists gather evidence of environmental change from marine sediments. We will examine how to use fossils and other evidence for reconstructing sea-level, ancient ocean currents, and abrupt paleoclimatic events and their impacts on marine life, and we will discuss major ideas about the driving forces of these past changes. Understanding the geologic past is highly relevant to understanding current and future environmental change.

ESCI 1909. Manoomin (Wild Rice) and Its Environment. (ENV; 3 cr. ; A-F or Audit; Periodic Fall)
Manoomin (Ojibwe for wild rice) is Minnesota?s beloved state grain, and it plays a central role in both the diet and cultural identity of many Native peoples around the Great Lakes. Manoomin/wild rice is an aquatic grass that grows naturally in shallow lakes and streams, but unfortunately, due to its high sensitivity to various environmental stressors (e.g., perturbed water levels, contaminants, competitive and invasive species, and climate change), it has been experiencing progressive declines across the region. This has been alarming for Native and non-Native people for whom manoomin/wild rice holds special meaning. In this course, students will gain an interdisciplinary perspective on how multiple components of the environment, as well as people?s relationships and actions with it, together influence the health of manoomin/wild rice stands. Understanding what supports manoomin/wild rice requires a look at local lake to greater watershed-scale conditions; interacting ecological, hydrological, geochemical, and geological processes; and different environmental management approaches driven by diverse values. While manoomin/wild rice has served as a flashpoint between tribes and industries that impair their environment, we will learn how it can also become a rallying point for Indigenous knowledge-holders and conventional academic scientists to share different worldviews, for tribal and non-tribal policy-makers to collaboratively manage resources, and for all communities living around manooomin/wild rice waters to be better stewards of the whole environment. Students will learn a holistic approach to studying manoomin/wild rice and its environment through readings and exercises that span disciplines. They will also participate in community-engaged learning activities that integrate perspectives beyond conventional academic cultures that can deepen our understanding of the environment. There will also be a two-night field trip during the first weekend of the semester for students to experience first-hand manoomin/wild rice waters, traditional processing methods, and Ojibwe craft-making with elders from the White Earth Indian Reservation.

ESCI 2201. Solid Earth Dynamics. (; 4 cr. ; A-F or Audit; Every Fall)
Dynamics of solid Earth, particularly tectonic system. Seismology, internal structure of Earth. Earth's gravity, magnetic fields. Paleomagnetism, global plate tectonics, tectonic systems. Field trip. prereq: concurrent registration is required (or allowed) in PHYS 1301 or instr consent

ESCI 2202. Earth History. (; 4 cr. ; A-F only; Every Spring)
Big Bang cosmology, plate tectonics, evolution. Formation of Earth. Chemical evolution of Earth, atmosphere, and ocean. Origin/tectonic evolution of continents. Origin of life, its patterns/processes. Long-term interactions between geosphere, atmosphere, and biosphere. prereq: [2201, 2301] or instr consent

ESCI 2203. Earth Surface Dynamics. (; 4 cr. ; A-F or Audit; Every Spring)
Earth's surface processes, drivers, and implications. Interactions between atmosphere, lithosphere, hydrosphere, and biosphere.

ESCI 2301. Mineralogy. (; 3 cr. ; Student Option; Every Fall)
Crystallography, crystal chemistry, physics. Physical/chemical properties, crystal structures, chemical equilibria of major mineral groups. Lab includes crystallographic, polarizing microscope, X-ray powder diffraction exercises, hand-specimen mineral identification. prereq: [concurrent registration is required (or allowed) in CHEM 1061, concurrent registration is required (or allowed) in CHEM 1065, concurrent registration is required (or allowed) in MATH 1271] or instr consent

ESCI 2302. Petrology. (; 3 cr. ; Student Option; Every Spring)
Magmatic and metamorphic processes, with an emphasis on plate tectonic interpretation of rock sequences. prereq: 2301 or instr consent

ESCI 3002. Climate Change and Human History. (ENV; 3 cr. ; A-F or Audit; Spring Even Year)
Causes of long-/short-term climate change. Frequency/magnitude of past climate changes; their geologic records. Relationship of past climate changes to development of agrarian societies and to shifts in power among kingdoms/city-states. Emphasizes last 10,000 years.

ESCI 3004. Water and Society. (ENV; 3 cr. ; Student Option; Periodic Fall)
For non-science majors. Study of (1) the role of humans as agents influencing the composition (quality) of water resources through domestic, agricultural, industrial, and other land-use practices; (2) the role of water in various ecosystem services which may be at odds with the anthropocentric view of water as a resource; (3) how population increase and climate change, coupled with human actions, is affecting the quality and quantity of available water, leading to lack of access to clean water and decent sanitation, and to severe water shortages (e.g., for irrigation) in some areas, especially in developing nations and politically unstable regions; and (4) how the availability of water shapes a society?s view of water as a resource and its view of the non-human demands for water (which is not uniform across the globe).

ESCI 3005. Earth Resources. (; 3 cr. ; Student Option; Fall Odd Year)
Geologic aspects of energy/material resources. Resource size/life-times. Environmental consequences of resource use. Issues of international/public ethics associated with resource production, distribution, and use.

ESCI 3006. Rocks and Stars: Introduction to Planetary Science. (; 3 cr. ; Student Option; Spring Even Year)
ESCI 3006 is designed for students without strong backgrounds in math or physical sciences that are interested in an introductory level survey of planetary science. Students with stronger backgrounds in earth or other physical sciences may also find much of interest, although the approach will be largely non-quantitative. The course will introduce undergraduate students to the dazzling variety of worlds in our solar system and illustrate how many of the planetary scale systems of the Earth compare and contrast to those of other planets. The course will also consider the dynamical and chemical processes that lead to the origin of our solar system and Earth. Additionally, we will also survey recent exciting observations and discoveries of exoplanets, including consideration of how the diversity of other solar systems aids understanding of our own. The physical and chemical principles underlying planetary processes will be a unifying theme of the course. The course will take advantage of the many resources made available by planetary exploration missions, including those producing the most recent new observations. Owing to the fast-moving pace of discovery in planetary science the curricular content will be and updated each time the course is taught. prereq: An interest in the solar system and planets.

ESCI 3093. Directed Studies in Earth & Environmental Sciences: Junior. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed studies in earth & environmental sciences under the direction of a faculty member. Prereq: instr consent

ESCI 3190. Curricular Practical Training. (1 cr. [max 2 cr.] ; S-N only; Every Fall, Spring & Summer)
Work assignments involving advanced earth science training. Reviewed by the Director of Undergraduate Studies.

ESCI 3202. Fluid Earth Dynamics. (; 4 cr. ; Student Option; Every Fall)
Dynamics of fluid Earth, mainly surface processes and convection. prereq: concurrent registration is required (or allowed) in 2201

ESCI 3303W. Geochemical Principles. (WI; 4 cr. ; Student Option; Every Fall)
Origin of elements (nucleosynthesis, elemental abundances). Geochemical classifications. Isotopes (radioactive, stable). Phase equilibria. Models of Earth's geochemical evolution. Basic geochemical processes that produced Earth's lithosphere, hydrosphere, atmosphere. prereq: [concurrent registration is required (or allowed) in CHEM 1061, concurrent registration is required (or allowed) in CHEM 1065] or instr consent

ESCI 3402. Science and Politics of Global Warming. (ENV; 3 cr. ; Student Option; Every Spring)
Detection/attribution of global warming using concepts of radiation, climate system, and carbon cycle. Effects on society/biodiversity. National/global efforts/controversy over responses/consequences.

ESCI 3403. Computer Applications in Earth & Environmental Sciences. (3 cr. ; Student Option No Audit; Every Spring)
This class is meant to provide students with skills in scientific computer programming, specifically with a special focus on the Earth & environmental sciences and other disciplines where spatial data are important. The course assumes no previous knowledge of computer programming. Although the class will use MATLAB, topics covered in the course include concepts common to all programming languages including functions, logic, branching, loops, data types, binary code, data formatting for input/output, among others. Additionally, students will develop problem-solving skills in learning how to design algorithms to achieve a task and in learning how to troubleshoot and debug their code. Students taking the class at the 5xxx level will be required to complete a programming project related to their own research. This course will be different from other introductory-level programming courses in that it will have a spatial emphasis and focus on examples and datasets related to the Earth and environmental sciences. Students will learn how to access a variety of Earth and environmental science data repositories and work with data in standard formats (i.e. NetCDF). Working with geographically referenced data in different projections will be explored using different toolboxes available for that purpose. Plotting of data will also be extensively covered including the production of publication-quality figures and animations. Prereq: upper division or instructor consent.

ESCI 3880. Laboratory Workshop. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall & Spring)
Geologic or geophysical lab study. prereq: ESCI major or CEGE major or instr consent

ESCI 3890. Field Workshop. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall & Spring)
Earth sciences field workshop where students learn about the geological aspects of specific area(s) and culminates in a field trip to that area(s) to see the geology first-hand.

ESCI 3891. Field Methods. (2 cr. ; A-F only; Every Spring)
Methods in geologic field mapping.

ESCI 3896. Internship in Earth and Environmental Sciences. (; 1-4 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
This course is meant for students who are in the process of doing an internship related earth and environmental sciences at a firm, nonprofit organization, or public agency (at the federal, state, county, or municipal level) that is off-site from the University. The course is designed to help you analyze, reflect on, and construct meaning from your internship experience through the following: 1) self-assessment of personal and career needs and goals, 2) examination of what it means to be a "professional" and operate within professional environments, 3) evaluation of performance & accomplishments, 4) articulation of knowledge and skills via effective resume writing and/ or interviewing. You will accomplish this through processing/discussing your internship experience through academic assignments and interaction with fellow classmates and departmental staff. It's important to work with your internship supervisor to create a learning contract that outlines what you plan to learn and accomplish during your internship and how you plan to contribute and add value to the organization. You will complete various additional assignments including blogs, readings, and a resume that will allow you to gain knowledge and insight from your experience. What you gain from this class will be the direct result of the effort you put into it!

ESCI 3911. Introductory Field Geology. (; 4 cr. ; A-F or Audit; Every Summer)
Geologic mapping on topographic maps and aerial photos. Field identification of igneous, sedimentary, and metamorphic rocks. Measurement of stratigraphic sections. Structural/geomorphic features. prereq: 2201, 3891, instr consent

ESCI 4010. Undergraduate Seminar: Current Topics in Earth & Environmental Sciences. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Topics in earth sciences investigated in a seminar format. prereq: instr consent

ESCI 4093. Directed Studies in Earth & Environmental Sciences: Senior. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed studies in earth & environmental sciences under the direction of a faculty member. prereq: instr consent

ESCI 4094. Senior Thesis. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Senior-level majors engage in independent research under faculty supervision. Select problems according to individual interests and in consultation with faculty committee. Thesis and oral defense. prereq: Sr, Geo or ESci major, instr consent

ESCI 4102W. Vertebrate Paleontology: Evolutionary History and Fossil Records of Vertebrates. (WI; 3 cr. ; A-F or Audit; Spring Even Year)
Vertebrate evolution (exclusive of mammals) in phylogenetic, temporal, functional, and paleoecological contexts. Vertebrate anatomy. Methods in reconstructing phylogenetic relationships and origin/history of major vertebrate groups, from Cambrian Explosion to modern diversity of vertebrate animals. prereq: 1001 or 1002 or Biol 1001 or Biol 1002 or Biol 1009 or instr consent

ESCI 4103W. Fossil Record of Mammals. (WI; 3 cr. ; A-F or Audit; Spring Odd Year)
Evolutionary history of mammals and their extinct relatives. Methods in reconstructing phylogeny. Place of mammals in evolutionary history of vertebrate animals. Major morphological/ecological transitions. Origins of modern groups of mammals. Continuing controversies in studying fossil mammals.

ESCI 4104. Evolution and Paleobiology of Fossil Reptiles. (3 cr. ; A-F or Audit; Spring Odd Year)
Reptiles first appear in the fossil record about 315 million years ago as small lizard-like carnivores and diversified greatly into a wide range of ecological roles during the Mesozoic. This radiation includes multiple invasions of the aquatic realm by groups as diverse as turtles, ichthyosaurs, plesiosaurs, and mosasaurs, and also encompasses two of the three groups of vertebrates to evolve active flight, namely birds and pterosaurs. Dinosaurs, most famous among the reptilian clades, dominated terrestrial ecosystems for over 100 million years and evolved large body sizes unsurpassed by any other terrestrial group. This course will cover the fossil record, evolution and paleobiology of reptiles (including birds) from the Carboniferous to the Present. Using both literature and demonstrations on skeletons/casts, students will learn the basics of reptilian anatomy and biology, and how those are used to infer evolutionary relationships and ecology of the diverse extinct reptilian clades listed above. Methods for inferring phylogenetic relationships, measuring biodiversity in the fossil record, and reconstructing the physiology and life history strategies of extinct reptiles will also be covered. The relationship between major geological events, such as changing climate and continental drift, and the origination, diversification, and extinction of reptilian groups through more than 300 million years of in Earth history will be explored. Prerequisites: ESci 1001 or ESci 1002 or Biol 1001 or Biol 1002 or Biol 1009 or instructor consent.

ESCI 4203. Environmental Geophysics. (; 3 cr. ; Student Option; Every Fall)
Seismic exploration (reflection and refraction); potential techniques (gravity and magnetics)

and electrical techniques of geophysical exploration. prereq: Phys 1301

ESCI 4204. Geomagnetism and Paleomagnetism. (; 3 cr. ; Student Option; Periodic Fall)
Present geomagnetic field at the Earth's surface, secular variation, geomagnetic field reversals. Physical and chemical basis of paleomagnetism: origin of natural remanent magnetization, mineralogy of magnetic minerals, magnetic polarity stratigraphy, apparent polar wander, and environmental magnetism. prereq: 2201, Phys 1302, Math 1272 or instr consent

ESCI 4211. Solid Earth Geophysics I. (; 3 cr. ; A-F or Audit; Every Fall)
Basic elasticity, basic seismology, and physical structure of the Earth's crust and deep interior. prereq: 2201, Phys 1302

ESCI 4212. Solid Earth Geophysics II. (; 3 cr. ; A-F or Audit; Every Spring)
Dynamics of the solid Earth, mostly mantle and core; seismic tomography, geothermal measurements, gravity, time-dependent deformation of the Earth, computer modeling. prereq: 2201, Phys 1302

ESCI 4401. Aqueous Environmental Geochemistry. (3 cr. ; Student Option; Periodic Spring)
General principles of solution chemistry applied to geology. Solution-mineral equilibria. Redox processes in natural waters. Geochemistry of hydrothermal fluids. Environmental geochemistry.

ESCI 4402. Biogeochemical Cycles in the Ocean. (3 cr. ; Student Option; Spring Even Year)
Marine biogeochemistry and chemical oceanography. Processes controlling chemical composition of oceans past/present. Cycles of major/minor constituents, including carbon, nitrogen, phosphorus, silicon, and oxygen and their isotopes. Role of these cycles in climate system. prereq: [CHEM 1021, CHEM 1022] or instr consent

ESCI 4501. Structural Geology. (; 3 cr. ; Student Option; Every Fall)
Fundamental concepts related to deformation of Earth's crust. Processes associated with deformation, faulting, folding, fabric development. Lab/recitation include solving problems, conducting physical/numerical experiments. Field trips. prereq: 2201, 2302

ESCI 4502. Tectonic Styles. (; 3 cr. ; Student Option; Periodic Fall)
Origin and nature of major types of tectonic disturbances affecting the crust and lithosphere, including analysis of the form and development of individual structural components and relationship to plate tectonics. Changes over geologic time in the nature of orogenic processes. prereq: 4501 or instr consent

ESCI 4602. Sedimentology and Stratigraphy. (; 3 cr. ; Student Option; Every Spring)
Interpretation of origin of sedimentary rocks through application of basic physical/chemical principles. Modern depositional environments, petrographic microscopy, basin dynamics, stratigraphy. prereq: [2203, 2301] or instr consent

ESCI 4701. Geomorphology. (; 4 cr. ; Student Option; Every Fall)
Origin, development, and continuing evolution of landforms in various environments. Environmental implications. Weathering, slope and shore processes, fluvial erosion and deposition, arid region processes, glacial processes. This course includes lecture and laboratory components, including field trips. Prereqs: MATH 1271 (Calculus I) or equivalent; PHYS 1301 (Physics I: Classical Mechanics) or equivalent. Instructor consent is required to take this course without the prerequisite courses or their equivalents, and it is recommended to take these classes at least concurrently (as co-requisites) with geomorphology. No help will be given on material covered in prerequisite courses.

ESCI 4702. General Hydrogeology. (; 4 cr. ; Student Option; Every Spring)
Theory of groundwater geology, hydrologic cycle, watershed hydrology, Darcy's law, governing equations of groundwater motion, flow net analysis, analog models, groundwater resource evaluation/development. Applied analysis of steady and transient equations of groundwater motion and chemical transport. Chemistry of natural waters. prereq: [concurrent registration is required (or allowed) in CHEM 1062, concurrent registration is required (or allowed) in CHEM 1066, MATH 1271, PHYS 1201] or instr consent

ESCI 4703. Glacial Geology. (; 4 cr. ; Student Option; Fall Odd Year)
Formation and characteristics of modern glaciers; erosional and depositional features of Pleistocene glaciers; history of quaternary environmental changes in glaciated and nonglaciated areas. Field trips and labs. prereq: 1001 or instr consent

ESCI 4801. Geomicrobiology. (; 3 cr. ; Student Option; Every Spring)
Geosphere/biosphere interactions over temporal/spatial scales. Global biogeochemical cycling, microbe-metal interactions, microbial paleobiology, environmental geomicrobiology, life detection, habitability of planets. prereq: One semester college level biology

ESCI 4911. Advanced Field Geology. (; 4 cr. ; A-F or Audit; Every Summer)
Geologic mapping; study of igneous, metamorphic, and sedimentary rocks; structures and surficial features; problem solving. Paper required. prereq: 3911, instr consent

ESCI 4971W. Field Hydrogeology. (WI; 4 cr. ; Student Option; Every Summer)
Aquifer, vadoze zone, and surface water hydrology field techniques. Shallow soil boring, sampling. Well installation. Single/multiple well aquifer testing. Ground water sampling for chemical analysis. Weather data collection, hydrogeologic mapping, water balance calculation. prereq: instr consent

ESCI 5093. Directed Studies in Earth Sciences. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Independent, directed study in earth sciences arranged by student/faculty member.

ESCI 5102. Climate Change and Human History. (; 3 cr. ; Student Option; Spring Even Year)
Causes of long-/short-term climate change. Frequency/magnitude of past climate changes, their geologic records. Relationship of past climate changes to development of agrarian societies and to shifts in power among kingdoms/city-states. Emphasizes last 10,000 years. prereq: 1001 or equiv or instr consent

ESCI 5201. Time-Series Analysis of Geological Phenomena. (; 3 cr. ; A-F or Audit; Periodic Fall)
Time-series analysis of linear and nonlinear geological and geophysical phenomena. Examples drawn from ice age cycles, earthquakes, climatic fluctuations, volcanic eruptions, atmospheric phenomena, thermal convection and other time-dependent natural phenomena. Modern concepts of nonlinear dynamics and complexity theory applied to geological phenomena. prereq: Math 2263 or instr consent

ESCI 5203. Mineral and Rock Physics. (; 3 cr. ; Student Option; Periodic Spring)
Physical properties of minerals and rocks as related to the composition and dynamics of the Earth's crust, mantle, and core. prereq: 2201, Phys 1302

ESCI 5204. Geostatistics and Inverse Theory. (; 3 cr. ; Student Option; Fall Odd Year)
Statistical treatment of geological and geophysical data. Statistical estimation. Stochastic processes/fields. Non-linear/non-assumptive error analysis. Cluster analysis. Eigenvalue-eigenvector methods. Regional variables. Correlograms and kriging. Theoretical framework of linear geostatistics and geophysical inverse theory. prereq: Stat 3011 or instr consent

ESCI 5302. Isotope Geology. (; 3 cr. ; A-F or Audit; Every Fall)
Theory and uses of radioactive, radiogenic, and stable isotopes in geology. Radioactive dating, geothermometry, and tracer techniques in geologic processes. prereq: 3303W or instr consent

ESCI 5351. Geochemical Modeling of Aqueous Systems. (; 3 cr. ; Student Option; Spring Odd Year)
Using mass transfer reaction path models to assess chemical evolution of natural fluids, hydrothermal alteration processes, and formation of hydrothermal ore deposits. prereq: 4401

ESCI 5353. Electron Microprobe Theory and Practice. (; 3 cr. ; Student Option; Periodic Fall)
Characterizing solid materials with electron beam instrumentation, including reduction of X-ray data to chemical compositions. prereq: [One yr chem, one yr physics] or instr consent

ESCI 5402. Science and Politics of Global Warming. (; 3 cr. ; Student Option; Spring Odd Year)
Detection/attribution of global warming using radiation, climate system, and carbon cycle. Effects on society/biodiversity. National/ global efforts. Controversy over responses/ consequences.

ESCI 5403. Computer Applications in Earth & Environmental Sciences. (3 cr. ; Student Option No Audit; Every Spring)
This class is meant to provide students with skills in scientific computer programming, with a special focus on the Earth & environmental sciences and other disciplines where spatial data are important. The course assumes no previous knowledge of computer programming. Although the class will use MATLAB, topics covered in the course include concepts common to all programming languages including functions, logic, branching, loops, data types, binary code, data formatting for input/output, among others. Additionally, students will develop problem-solving skills in learning how to design algorithms to achieve a task and in learning how to troubleshoot and debug their code. Students taking the class at the 5xxx level will be required to complete a programming project related to their own research. This course will be different from other introductory-level programming courses in that it will have a spatial emphasis and focus on examples and datasets related to the Earth and environmental sciences. Students will learn how to access a variety of Earth and environmental science data repositories and work with data in standard formats (i.e. NetCDF). Working with geographically referenced data in different projections will be explored using different toolboxes available for that purpose. Plotting of data will also be extensively covered including the production of publication-quality figures and animations.

ESCI 5503. Advanced Petrology. (; 3 cr. ; Student Option; Fall Odd Year)
Quantitative approach to modern igneous/ metamorphic petrology. Emphasizes thermodynamics of minerals/melts and with applications to phase diagrams, thermobarometry, melting relationships, and energetics of petrologic mass transfer. prereq: 2302, CHEM 1061, CHEM 1065, [MATH 1372 or MATH 1272 or MATH 1572]

ESCI 5705. Limnogeology and Paleoenvironment. (; 3 cr. ; Student Option; Periodic Fall)
Within-lake, hydrogeologic, and landscape (geological/biological) processes that lead to formation of various proxy records of paleoenvironment. Systems approach to physical, geochemical, biogeochemical, and biotic proxies. Basic principles, case studies. Emphasizes how proxy records relate to paleoclimate. prereq: instr consent

ESCI 5805. Standards and Practices for Professional Geoscienists. (3 cr. ; Student Option; Every Spring)
This course is meant to provide students with a clear understanding of the standards and practices regularly used by Geoscience professionals in industry and agency. The course builds on the foundational knowledge offered through the core curriculum of the Earth Sciences undergraduate major, and fills a critical gap in showing how this knowledge is translated into common standards and practices, regulations, funding mechanisms, and even professional expectations within a variety of geoscience disciplines. In short, this course aims to smooth a student?s transition from University to an entry-level position from which they can build a successful and sustainable career. This course is targeted for both upper level undergraduates and graduate students. Aspects of the course include: -Detailed discussion of regional stratigraphy, bedrock and glacial geology and how they relate to various industrial applications and environmental issues. -Examination of state and federal environmental regulations, as well as the phases of environmental impact statements. -Survey of fundamental investigation techniques (GeoProbe drilling, hollow-stem auger drilling, well installation, analytical testing ? soil, groundwater, air). -Introduction to environmental clean-up grants and their management. -Assessment of topics covered in the National Association of State Boards of Geology (ASBOG) Fundamentals of Geology (FG) exam. This exam is a required step on the way to becoming a registered geologist. The exam is offered in mid-March, and the expectation is that students participating in the class will take it. -Coordination and completion of the 40 hour HAZWOPER training through UMN. -Invited lectures from select representatives of various subfields and professional organizations (groundwater & contaminant hydrogeology, mining & geophysical exploration, environmental engineering, petroleum) to give students a jumpstart in their professional networking.

ESCI 5971. Field Hydrogeology. (; 2 cr. ; Student Option; Every Summer)
Aquifer, vadoze zone, and surface water hydrology field techniques. Shallow soil boring and sampling. Well installation. Single/ multiple well aquifer testing. Ground water sampling for chemical analysis. Weather data collection, hydrogeologic mapping, water balance calculation. prereq: instr consent

ESCI 5980. Seminar: Current Topics in Earth Sciences. (; 1-4 cr. [max 12 cr.] ; S-N or Audit; Periodic Fall & Spring)
Topics in earth sciences investigated in a seminar format.

East Asian Studies (EAS)

EAS 3461. Introduction to East Asia I: The Imperial Age. (; 3-4 cr. ; Student Option; Every Fall & Spring)
Comparative survey of early history of China, Japan, Korea, and Vietnam; early Chinese thought; diffusion of Confucianism, Buddhism, and other values throughout East Asia; political and social history of region to 1600.

EAS 3462. From Subjects to Citizens: The History of East Asia From 1500 to the Present. (GP,HIS; 3-4 cr. ; Student Option; Every Spring)
How Asian states, societies, economies, and cultures linked with one another and with European powers. How period's historical effects still resonate. Covers India, China, Japan, Korea, and Indochina.

EAS 3462H. Honors: From Subjects to Citizens: The History of East Asia from 1500 to the Present. (GP,HIS; 3-4 cr. ; A-F only; Every Spring)
How Asian states, societies, economies, cultures linked with one another/European powers. Historical effects. Covers India, China, Japan, Korea, Indochina.

EAS 3468. Social Change in Modern China. (; 3 cr. ; Student Option; Every Fall)
Opium War and opening of Treaty Ports in 19th century; missionary activity and cultural influence; changes in education system; women's movement; early industrialization; socialism and collectivization after 1949; industrialization of Taiwan; PRC's entry into the world trading system.

EAS 3471. Modern Japan, Meiji to the Present (1868-2000). (HIS; 3 cr. ; Student Option; Every Fall & Spring)
Japan's early development as industrial/ imperial power after Meiji Restoration of 1868. Political developments in Taisho years: social, cultural, economic trends that supported them. Militarization/mobilization for war in 1930s. Japan's war with China, Pacific War with the United States. American occupation. Postwar economic recovery, high growth. Changing political/popular culture of 1980s, '90s.

EAS 3479. History of Chinese Cities and Urban Life. (; 3 cr. [max 4 cr.] ; A-F or Audit; Periodic Fall & Spring)
Introduction to traditional Chinese cities, modern transformation. Ideal city plan in Confucian classics compared with physical layout of major cities. Models about Chinese cities, influence of models on our understanding of Chinese history/society.

Ecology, Evolution, and Behav (EEB)

EEB 3001. Ecology and Society. (ENV; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Basic concepts in ecology. Organization, development, function of ecosystem. Population growth/regulation. Human effect on ecosystems. prereq: [Jr or sr] recommended; biological sciences students may not apply cr toward major

EEB 3002. Sex, Evolution, and Behavior: Examining Human Evolutionary Biology. (; 4 cr. ; A-F or Audit; Every Spring)
Methods/theories to understand humans in evolutionary framework. What can be known only/primarily from evolutionary perspective. How evolutionary biology of humans might lead to better evolutionary theory. How physiology, development, behavior, and ecology coordinate/coevolve in humans.

EEB 3407. Ecology. (3 cr. ; Student Option; Every Fall & Summer)

Principles of ecology from populations to ecosystems. Applications to human populations, disease, exotic organisms, habitat fragmentation, biodiversity and global dynamics of the earth.

EEB 3408W. Ecology. (WI; 4 cr. ; Student Option; Every Spring)
Principles of population growth/interactions, communities and ecosystem function applied to ecological issues. Regulation of populations, dynamics/impacts of disease, invasions by exotic organisms, biodiversity, global change. Lab. Scientific writing. Quantitative skill development (mathematical models, data analysis, statistics and some coding in R). prereq: [One semester college biology or instr consent], [MATH 1142 or MATH 1271 or Math 1272 or Math 1241 or Math 1242 or MATH 1281 or Math 1282 or equiv]

EEB 3409. Evolution. (3 cr. ; Student Option; Every Fall & Spring)
Diversity of forms in fossil record and in presently existing biology. Genetic mechanisms of evolution, including natural selection, sexual selection, genetic drift. Examples of ongoing evolution in wild/domesticated populations and in disease-causing organisms. Lab. prereq: One semester college biology

EEB 3411. Introduction to Animal Behavior. (3 cr. ; Student Option; Every Fall)
Biological study of animal behavior. Mechanism development, function, and evolution. Emphasizes evolution of adaptive behavior, social behavior in the natural environment. Lab. prereq: One semester of college biology

EEB 3412W. Introduction to Animal Behavior. (WI; 4 cr. ; A-F only; Every Spring)
Writing intensive course. Introduction to animal behavior. Feeding behavior, reproductive behavior, perception, learning, animal conflict, social behavior, parental care, communication. Scientific process. Formulate research questions. prereq: Undergrad biology course

EEB 3500. Special Topics in Ecology, Evolution and Behavior. (; 1-3 cr. [max 4 cr.] ; S-N only; Every Fall & Spring)
Special Topics in Ecology, Evolution and Behavior

EEB 3534. Biodiversity Science: The origins, maintenance, consequences, detection & assessment of biodiversity. (ENV; 3 cr. ; A-F only; Every Fall)
Biodiversity science is a rapidly expanding field of enquiry with increasing digital resources and global monitoring capabilities precisely at the moment in history that scientists recognize as the Sixth Extinction. In other words, we are currently facing a biodiversity crisis with threats to the Earth's biota not seen since the dinosaurs perished 65 million years ago. "Biodiversity" was coined by W.G. Rosen and E.O Wilson in the 1980s to describe the variation in all of life on Earth. The term is now widely used in both the scientific and popular literature and is at the center of scientific enquiry, conservation efforts, large-scale collaborative pursuits of technological advances to allow monitoring from space, and global assessments that interface with international policy. Biodiversity requires integration across multiple disciplines from evolution, to ecology, remote sensing, conservation biology, economics and the social sciences, including the environmental policy. Biodiversity science is thus inherently interdisciplinary. As a consequence, rarely does a single course provide students the opportunity to focus on this critical topic from multiple perspectives and dimensions. This new course seeks to provide students intensive study of biodiversity from six perspectives: 1) the origins of biodiversity, including the processes of speciation and extinction over macroevolutionary timescales and those involved in generating biological variation at microevolutionary scales; 2) the ecological problem of species coexistence, given the nature of competitive interactions and biological filters with a focus on the interactions of individual species and major threats to biodiversity; 3) the consequences of biodiversity and biodiversity loss for ecosystem functions, focusing on ecosystem scale processes; 4) the services or benefits to humans attributed to biodiversity, including cultural benefits of biodiversity; here we discuss both practical and ethical arguments for sustaining biodiversity; 5) methods of detecting biodiversity including classic field biodiversity observations and taxonomic collections and emerging remote sensing methods that harness hyperspectral data and satellite imagery; and 6) scientific assessments of biodiversity that communicate the science of biodiversity to policymakers, particularly the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). The IPBES involves scientists from around the world and integrates indigenous and local knowledge (ILK). The United Nations and governments around the globe are sponsoring the IPBES, building on earlier assessments such as a prominent one in the UK. Several guest lecturers from across the University will participate in discussions and aid in development of computer labs (including Sharon Jansa (CBS), Keith Barker (CBS), Joe Knight (CFANS), and others). prereq: One semester college biology or instr consent, MATH 1142 or MATH 1271 or Math 1272 or Math 1241 or Math 1242 or MATH 1281 or Math 1282 or equiv

EEB 3603. Science, Protection, and Management of Aquatic Environments. (; 3 cr. ; Student Option; Every Spring)
Fundamentals of aquatic ecology. Case study approach to water problems faced by society (e.g., eutrophication, climate change, invasive species, acid rain, wetland protection, biodiversity preservation). Science used to diagnose/remediate or remove problems. prereq: One semester college biology

EEB 3701. EEB Seminar. (1 cr. ; S-N only; Every Fall & Spring)
Learn about recent developments in cutting-edge topics in the area of Ecology, Education and Behavior and engage with the EEB community of faculty, graduate students and post docs and observe professional norms in the field. Engage directly with practicing scientists and the primary literature from their work and learn how to give a scientific talk by observing and critically evaluating and discussing seminars.

EEB 3807. Ecology. (4 cr. ; A-F or Audit; Every Summer)
Population growth/interactions. Ecosystem function applied to ecological issues. Regulation of human populations, dynamics/impacts of disease, invasions by exotic organisms, habitat fragmentation, biodiversity. Lab, field work. prereq: [One semester college biology], [MATH 1142 or MATH 1271 or MATH 1281 or equiv]

EEB 3811W. Introduction to Animal Behavior. (WI; 4 cr. ; A-F or Audit; Every Summer)
Biological study of animal behavior. Mechanism development, function, evolution. Emphasizes evolution of adaptive behavior, social behavior in natural environment. Lab, field work. prereq: 1002 or 1009 or 2003 or equiv or instr consent

EEB 4068. Plant Physiological Ecology. (; 3 cr. ; Student Option No Audit; Spring Even Year)
Plant function, its plasticity/diversity in an ecological context. Impact of environmental stresses on major physiological processes of plants, including photosynthesis, respiration, water uptake/transport, and nutrient uptake/assimilation. Lab, field trip to Cedar Creek.

EEB 4129. Mammalogy. (; 4 cr. ; A-F or Audit; Every Fall)
Evolutionary and biogeographic history of mammalia. Recognize, identify, and study natural history of mammals at the ordinal level, North American mammals at familial level, and mammals north of Mexico at generic level. Minnesota mammals at specific level. Includes lab. prereq: Biol 1001 or Biol 2012

EEB 4134. Introduction to Ornithology. (; 4 cr. ; Student Option; Every Spring)
Structure, evolution, classification, distribution, migration, ecology, habitats, identification of birds. Lecture, lab, weekly field walks. One weekend field trip. prereq: Biol 1001 or Biol 2012

EEB 4329. Primate Ecology and Social Behavior. (; 3 cr. ; A-F or Audit; Periodic Fall)
Primates as model system to explore animal/human behavior. Factors influencing sociality/group composition. Mating systems. Prevalence of altruistic, cooperative, and aggressive behavior. Strength of social bonds in different species. Evolution of intelligence/culture. prereq: BIOL 1009 or BIOL 1951 or BIOL 3411 or ANTH 1001 or instr consent

EEB 4330W. Animal Communication. (WI; 3 cr. ; A-F or Audit; Fall Odd Year)
Mechanisms of signal production/perception, signal propagation. How signals can convey information. How signalers, signals, receivers are adapted for communication by natural/sexual selection. prereq: BIOL 1951, BIOL 2003/2004, BIOL 3411, PHYS 1201W, PHYS 1202W [PHYS 1301W, PHYS 1302W]

EEB 4609W. Ecosystem Ecology. (ENV,WI; 3 cr. ; Student Option; Every Fall)

Regulation of energy and elements cycling through ecosystems. Dependence of cycles on kinds/numbers of species within ecosystems. Effects of human-induced global changes on functioning of ecosystems. prereq: Biol 3407 or instr consent

EEB 4611. Biogeochemical Processes. (3 cr. ; Student Option; Periodic Spring)
Application of biochemistry, ecology, chemistry, and physics to environmental issues. Issues in biogeochemistry. Impact of humans on biogeochemical processes in soils, lakes, oceans, estuaries, forests, urban/managed ecosystems, and extreme environments (e.g., early Earth, deep sea vents, thermal springs). prereq: [BIOC 2331, CHEM 2301, PHYS 1201] or instr consent

EEB 4793W. Directed Studies: Writing Intensive. (WI; 1-7 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Individual study on selected topics or problems. Emphasizes readings, use of scientific literature. Written report. prereq: instr consent, dept consent

EEB 4794W. Directed Research: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

EEB 4839. Field Studies in Mammalogy. (4 cr. ; A-F or Audit; Every Summer)
Techniques for studying small mammals. Lectures/field projects emphasize identification, distributions, community interactions, ecophysiology, population ecology. prereq: College-level biology course that includes study of animals or instr consent

EEB 4844. Field Ornithology. (4 cr. ; A-F or Audit; Every Summer)
Biology of breeding birds through use of field techniques at Itasca Biological Station/ Laboratories. Daily fieldwork emphasizes identification, behavioral observations, netting/ censusing. prereq: One semester college biology or instr consent

EEB 4993. Directed Studies. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

EEB 4994. Directed Research. (; 1-6 cr. [max 42 cr.] ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a Research/Directed Studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

EEB 5042. Quantitative Genetics. (; 3 cr. ; A-F only; Every Fall)
Fundamentals of quantitative genetics. Genetic/environmental influences on expression of quantitative traits. Approaches to characterizing genetic basis of trait variation. Processes that lead to change in quantitative traits. Applied/evolutionary aspects of quantitative genetic variation. prereq: [BIOL 4003 or GCD 3022] or instr consent; a course in statistics is recommended

EEB 5053. Ecology: Theory and Concepts. (; 4 cr. ; Student Option; Fall Odd Year)
Classical and modern mathematical theories of population growth, interspecific interactions, ecosystem dynamics and functioning, with emphasis on underlying assumptions and on effects of added biological reality on robustness of predictions, stability, interspecific interactions, ecosystem structure and functioning. prereq: Biol 3407 or instr consent

EEB 5068. Plant Physiological Ecology. (; 3 cr. ; Student Option No Audit; Spring Even Year)
Plant function, its plasticity/diversity in ecological context.Impact of environmental stresses on major physiological processes of plants, including photosynthesis, respiration, water uptake/transport, and nutrient uptake/ assimilation. Lab, field trip to Cedar Creek. prereq: BIOL 2022 or BIOL 3002 or BIOL 3407 or BIOL 3408W or instr consent

EEB 5221. Molecular Evolution. (; 3 cr. ; A-F or Audit; Periodic Fall)
Molecular basis of evolutionary change. Selection, neutral evolutionary processes at molecular level. Evolution from gene to genome level: protein structure/function, multigene families, organelle genomes, genome organization. Lectures, current literature, workshops. prereq: [[BIOL 4003 or GCD 3022], grad student]] or instr consent

EEB 5371. Principles of Systematics. (; 3 cr. ; Student Option; Fall Odd Year)
Theoretical/practical procedures of biological systematics. Phylogeny reconstruction. Computer-assisted analyses, morphological and molecular approaches, species concepts/speciation, comparative methods, classification, historical biogeography, nomenclature, use/value of museums. prereq: Grad student or instr consent

EEB 5407. Ecology. (3 cr. ; Student Option; Every Fall)
Principles of ecology from populations to ecosystems. Applications to human populations, disease, exotic organisms, habitat fragmentation, biodiversity and global dynamics of the earth. prereq: [Math 1142, 1241, 1271 or equivalent]

EEB 5409. Evolution. (3 cr. ; Student Option; Every Fall & Spring)
Diversity of forms in fossil record and in presently existing biology. Genetic mechanisms of evolution, including natural selection, sexual selection, genetic drift. Examples of ongoing evolution in wild/domesticated populations and in disease-causing organisms. Lab. prereq: One semester college biology

EEB 5534. Biodiversity Sci: The origins, maintenance, consequences, detection and assessment of biodiversity. (ENV; 3 cr. ; Student Option; Every Fall & Spring)
Biodiversity science is a rapidly expanding field of enquiry with increasing digital resources and global monitoring capabilities precisely at the moment in history that scientists recognize as the Sixth Extinction. In other words, we are currently facing a biodiversity crisis with threats to the Earth's biota not seen since the dinosaurs perished 65 million years ago. "Biodiversity" was coined by W.G. Rosen

and E.O Wilson in the 1980s to describe the variation in all of life on Earth. The term is now widely used in both the scientific and popular literature and is at the center of scientific enquiry, conservation efforts, large-scale collaborative pursuits of technological advances to allow monitoring from space, and global assessments that interface with international policy. Biodiversity requires integration across multiple disciplines from evolution, to ecology, remote sensing, conservation biology, economics and the social sciences, including the environmental policy. Biodiversity science is thus inherently interdisciplinary. As a consequence, rarely does a single course provide students the opportunity to focus on this critical topic from multiple perspectives and dimensions. This new course seeks to provide students intensive study of biodiversity from six perspectives: 1) the origins of biodiversity, including the processes of speciation and extinction over macroevolutionary timescales and those involved in generating biological variation at microevolutionary scales; 2) the ecological problem of species coexistence, given the nature of competitive interactions and biological filters with a focus on the interactions of individual species and major threats to biodiversity; 3) the consequences of biodiversity and biodiversity loss for ecosystem functions, focusing on ecosystem scale processes; 4) the services or benefits to humans attributed to biodiversity, including cultural benefits of biodiversity; here we discuss both practical and ethical arguments for sustaining biodiversity; 5) methods of detecting biodiversity including classic field biodiversity observations and taxonomic collections and emerging remote sensing methods that harness hyperspectral data and satellite imagery; and 6) scientific assessments of biodiversity that communicate the science of biodiversity to policymakers, particularly the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). The IPBES involves scientists from around the world and integrates indigenous and local knowledge (ILK). The United Nations and governments around the globe are sponsoring the IPBES, building on earlier assessments such as a prominent one in the UK. Several guest lecturers from across the University will participate in discussions and aid in development of computer labs (including Sharon Jansa (CBS), Keith Barker (CBS), Joe Knight (CFANS), and others).

EEB 5601. Limnology. (; 3 cr. ; Student Option; Every Fall)
Advanced introduction to description/analysis of interaction of physical, chemical, and biological factors that control functioning of life in lakes and other freshwater aquatic environments. prereq: Grad student or instr consent

EEB 5605. Limnology Laboratory. (; 2 cr. ; A-F or Audit; Every Fall)
Field/lab methods to obtain information on environmental conditions in aquatic environments and measure abundance of aquatic organisms, especially plankton. Field/lab instruments, sampling devices, microscopy, water chemistry, data analysis. prereq: 3603 or instr consent

EEB 5609. Ecosystem Ecology. (; 3 cr. ; Student Option; Every Spring)
Regulation of energy and elements cycling through ecosystems. Dependence of cycles on kinds/numbers of species within ecosystems. Effects of human-induced global changes on functioning of ecosystems. prereq: [Biol 3407 or Biol 5407] or instr consent

EEB 5611. Biogeochemical Processes. (3 cr. ; Student Option; Periodic Spring)
Application of biochemistry, ecology, chemistry, and physics to environmental issues. Issues in biogeochemistry. Impact of humans on biogeochemical processes in soils, lakes, oceans, estuaries, forests, urban/managed ecosystems, and extreme environments (e.g., early Earth, deep sea vents, thermal springs). prereq: [BIOC 2331, CHEM 2301, PHYS 1201] or instr consent

Economics (ECON)

ECON 1101. Principles of Microeconomics. (GP,SOCS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Microeconomic behavior of consumers, firms, and markets in domestic and world economy. Demand and supply. Competition and monopoly. Distribution of income. Economic interdependencies in the global economy. Effects of global linkages on individual decisions. prereq: knowledge of plane geometry and advanced algebra

ECON 1102. Principles of Macroeconomics. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Aggregate consumption, saving, investment, and national income. Role of money, banking, and business cycles in domestic and world economy. International trade, growth, and development. U.S. economy and its role in the world economy. International interdependencies among nations. prereq: [1101 or equiv], knowledge of plane geometry and advanced algebra

ECON 2020. The Economics of COVID-19. (; 1 cr. ; Student Option; Periodic Summer)
This course explores incorporating the standard epidemiology models of disease into economic modeling. The student will gain an understanding of how these epidemiology models work, and how they can be extended to allow the careful consideration of the tradeoffs inherent in choosing safety vs. economic well being. Topics will include SIR models from epidemiology, how contagious disease relates to standard economic concepts such as externalities, calculations of the Statistical Value of Life from economics, and the uses and pitfalls of mathematical modeling.

ECON 3101. Intermediate Microeconomics. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Behavior of households, firms, and industries under competitive/monopolistic conditions. Factors influencing production, price, and other decisions. Applications of theory. Economic efficiency. Distribution of well-being. prereq: [[1101, 1102] or equiv], [MATH 1271 or equiv]

ECON 3102. Intermediate Macroeconomics. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Determinants of national income, employment, and price level; effects of monetary and fiscal policies; emphasis on a general equilibrium approach. Applications of the theory, especially to current macroeconomic policy issues. Students cannot take this course if they have taken ApEc 3006, however, ApEc 3006 does not contain all material in Econ 3102. Econ majors are encouraged to take ECON 3102 instead of ApEc 3006 prereq: 3101 or equiv

ECON 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. The student's work is supervised and evaluated by a site coordinator or instructor.

ECON 3951. Economics Capstone. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Students produce a significant written work in economics. Project demonstrate critical thinking, collection/analysis of data, problem solving, interpretation of findings. Modes of inquiry in economics. prereq: 3101, 3102, [STAT 3011 or equiv], [STAT 3022 or equiv], two [3xxx or 4xxx] ECON courses, at least one 4xxx ECON writing intensive course, freshman writing requirement satisfied

ECON 3960. Topics in Economics: Area Studies. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Topics specified in class schedule. prereq: [1101, 1102] or equiv

ECON 3970. Topics in Economics. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Topics specified in class schedule. prereq: ECON 3102 or equivalents

ECON 3991. Independent Study. (; 1-3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students confirm topic of study with faculty supervisor or with director of undergraduate studies before beginning (otherwise no credit). prereq: 3101, 3102, dept consent

ECON 3993. Directed Studies. (; 1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study in areas not available in regular course offerings. prereq: 3101, 3102, 4261, two semesters of statistics

ECON 4108. Advanced Game Theory and Applications. (4 cr. ; A-F only; Every Fall)
For Econ B.S. students only. Games. Normal form, extensive form. Wars of attrition. Games

of timing. Bargaining applications in industrial organization, macroeconomics, international economics. prereq: [[3102]] or equiv], [[MATH 1271, MATH 1272] or equiv]; students should have successfully completed two 4xxx level UMNTC economics courses.

ECON 4113. Introduction to Mathematical Economics. (; 4 cr. ; A-F only; Periodic Fall & Spring)
Development of selected models of economic behavior in mathematical terms. Topics selected to illustrate advantages of mathematical formulation. prereq: [[3101, 3102] or equiv], [[MATH 1271, MATH 1272, MATH 2243] or equiv]

ECON 4115. Uncertainty and Information. (4 cr. ; A-F only; Every Fall & Spring)
For Econ B.S. students only. This Microeconomic theory course focuses on economies under uncertainty with possibly asymmetric information. Individual behavior of consumers and that of markets are studied under uncertainty with incomplete information. Related topics in technology and innovation. the information economy, and networks will be examined. prereq: [[3101, 3102]] or equiv], [[MATH 1271, MATH 1272, and Math 2243] or equiv]; strongly suggest students complete Stat 4101 before taking this course; students should have successfully completed two 4xxx level UMNTC economics courses.

ECON 4118. Advanced Mathematical Economics. (4 cr. ; A-F only; Periodic Fall & Spring)
Development of selected models of economic behavior in mathematical terms. Topics selected to illustrate advantages of mathematical formulation. prereq: [3101, 3102 or equiv], [MATH 1271, MATH 1272, MATH 2243 or equiv]. Students should have completed at least two upper division economics courses.

ECON 4161. Microeconomic Analysis I. (; 2 cr. ; A-F only; Every Fall)
Theories of consumer demand, producer supply, and market equilibrium. General equilibrium and welfare. May include topics such as externalities, economics of information/ uncertainty. Seven-week course. prereq: 3101, 3102, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4162. Microeconomic Analysis II. (; 2 cr. ; A-F or Audit; Every Fall)
Theories of consumer, producer, and market equilibrium. Includes general equilibrium, welfare, externalities, topics in information and uncertainty, and game theory. Seven-week course. prereq: 3101, 3102, 4161, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4163. Microeconomic Analysis III. (; 2 cr. ; A-F only; Every Spring)
The course is an introduction to basic concepts of stochastic calculus and application in economic analysis and finance. The aim of the course is to provide a treatment of the prerequisites. The requirements are basic probability and real analysis concepts; these will be reviewed in the first lectures. prereq: 3101, 3102, 4162, MATH 2243, MATH 2263, dept consent

ECON 4164. Microeconomic Analysis IV. (; 2 cr. ; A-F only; Every Spring)
Theory and applications of dynamic optimal control to economic environments. Analysis of barrier problems, where a single decision must be made at some point in time; analysis of optimal control problems where multiple, continuous decisions are made over time. May include investment decisions, regulated decision-making and elements of dynamic contracting. prereq: 3101, 3102, 4163, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4165. Macroeconomic Theory. (; 2 cr. ; Student Option; Every Fall)
Dynamic general equilibrium models: solving for paths of interest rates, consumption, investment, and prices. Seven-week course. Meets with 8105. prereq: 3101, 3102, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4166. Macroeconomic Theory. (; 2 cr. ; Student Option; Every Fall)
Dynamic general equilibrium models: solving for paths of interest rates, consumption, investment, and prices. Seven-week course. Meets with 8106. prereq: 3101, 3102, 4165, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4167. Macroeconomic Theory. (; 2 cr. ; Student Option; Every Spring)
General equilibrium models with uncertainty, search, matching, indivisibilities, private information. Implications of theory for measurement and data reporting. Overlapping generations, dynasty models with money/ government. Variational/recursive methods. Seven-week course. Meets with 8107. prereq: 3101, 3102, 4166, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4168. Macroeconomic Theory. (; 2 cr. ; Student Option; Every Spring)
General equilibrium models with uncertainty, search, matching, indivisibilities, private information. Implications of theory for measurement and data reporting. Overlapping generations, dynasty models with money/ government. Variational/recursive methods. Seven-week course. Meets with 8108. prereq: 3101, 3102, 4167, MATH 2243, MATH 2263, [[STAT 4101, STAT 4102] or equiv], dept consent

ECON 4211. Principles of Econometrics. (4 cr. ; Student Option; Every Fall)
Data analysis/quantitative methods in economics. Violation of classical regression model assumptions, modified estimation procedures that retain desirable properties. Multi-equation models. Computer applications/ interpretation of empirical results. prereq: [3101 or equiv], [Stat 3011 or equivalent, Stat 3022 or equivalent] or higher level Stat courses]

ECON 4261. Introduction to Econometrics. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
For Econ B.S. majors only. Review of basic linear regression model, its variants. Time series/simultaneous equation models. Material may include panel data, censored/truncated regressions, discrete choice models. prereq: [3101 or equiv], [[Math 1271, Math 1272] or equiv], Math 2243, Math 2263, [[Stat 4101, Stat 4102] or [Stat 5101, Stat 5102]]; Math 4242 strongly recommended

ECON 4311. Economy of Latin America. (; 3 cr. ; Student Option; Every Fall & Spring)
Economic evolution in Latin America since 1950. Trade liberalization, poverty, inflation, development strategies in selected Latin American countries. Theory/applications of important issues. prereq: [1101, 1102] or equiv

ECON 4317. The Chinese Economy. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Overview of the Chinese Economy; transition from command economy to a market-based one and effects on economic indicators; current economic issues and concerns of the Chinese economy; role of China in today's world economy.

ECON 4331W. Economic Development. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Economic growth in low income countries. Theory of aggregate and per capita income growth. Population growth, productivity increases, and capital formation. Allocation of resources between consumption and investment and among sectors. International assistance/trade. prereq: [[3101, 3102] or equiv], completion of freshman writing practice

ECON 4337. Comparative Economic Systems. (; 3 cr. ; Student Option; Every Fall & Spring)
Functions of economic systems; market economy versus centrally planned economy. Comparison of different economic systems. Post socialist transitions in Eastern Europe, Russia, and China. Initial conditions and strategies for reforms; results of reforms in terms of key economic indicators. prereq: 3101, 3102 or equiv

ECON 4341. Economics of Poverty and Income Inequality. (3 cr. ; A-F only; Every Fall)
This course focuses on the economic aspects of poverty and inequality in the United States. The course utilizes economic theory and empirical research to analyze the determinants of, and potential strategies to overcome poverty and inequality. Topics include measurement and trends of poverty and income inequality, labor markets, education, discrimination, residential segregation, immigration, hunger and nutrition, US farm policy, food distribution, food security, food aid, the connection between food production and health outcomes, as well as other related themes.

ECON 4401. International Economics. (GP; 3 cr. ; Student Option; Every Fall & Spring)
International trade flows. Commercial policy and welfare implications, protection. Global trade organizations. International factor mobility. Balance of payments analysis and open-economy macroeconomics. Foreign

exchange markets and exchange rate determination. International monetary system. Regional integration. Case studies. prereq: [[1101, 1102] or equiv], not open to econ majors

ECON 4425. London: Trade and Brexit. (GP; 3 cr. ; A-F only; Periodic Summer)
The seminar includes a history of trade and culture in UK and London since the 1500s up until the formation of the EU. It also includes UK plans for Brexit, and will discuss economic outcomes of it on London and international trade.

ECON 4431W. International Trade. (GP,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Theories of trade/trade patterns. Trade restrictions/commercial policy. International factor movements. Economic growth/ development. Multinational corporations. Regional integration. prereq: [3101, 3102] or equiv, freshman writing practice

ECON 4432W. International Finance. (WI; 3 cr. ; A-F only; Every Spring & Summer)
Balance of payments; international financial markets; exchange rate determination; international monetary system; international investment and capital flows; financial management of the multinational firm; open economy macroeconomic policy. prereq: 3101, 3102 or equiv;

ECON 4438W. Advanced International Trade. (GP,WI; 4 cr. ; A-F only; Every Spring)
Theories of trade/explanations of trade patterns. Trade restrictions. Commercial policy. International factor movements. Economic growth/development. Multinational corporations. Regional integration. prereq: [3101, 3102] or equiv, Math 1271, completion of freshman writing practice, [Math 1272 or equiv]

ECON 4531. Labor Economics. (3 cr. ; Student Option; Every Fall & Spring)
Economic analysis of labor markets and their operations; population and labor force; labor market institutions; wage and employment theories; unions and collective bargaining; public policy. prereq: 3101, 3102 or equiv

ECON 4538. Advanced Labor Economics. (4 cr. ; A-F only; Every Fall & Spring)
For B.S. Econ majors only. Economic analysis of domestic and global labor markets; population and labor force; labor market institutions; wage and employment theories; unions and collective bargaining; public policy including immigration, outsourcing, living wages, earnings mobility, downsizing; special topics. prereq: 3101, 3102 or equiv; Calc 1 or equivalent

ECON 4631. Industrial Organization and Antitrust Policy. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Relations between market structure, economic efficiency and welfare. Economic origins of monopoly and other restraints on competition. Purposes and effects of antitrust and related legislation. Industrial policy. prereq: 3101 or equiv

ECON 4721. Money and Banking. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Theories of money demand and money supply. Financial intermediation and banking, banking practices and regulation, role of the Federal Reserve system. Monetary theory and policy. prereq: [3101, 3102] or equiv

ECON 4731. Macroeconomic Policy. (; 3 cr. ; Student Option; Every Fall & Spring)
Monetary vs. fiscal policy debate in the context of the underlying macroeconomic theory controversy. Comparison of Keynesian, Monetarist, and Classical theories; rational expectations; policy ineffectiveness; time inconsistency; rules vs. discretion; budget deficits; unemployment and inflation. prereq: 3101, 3102 or equiv

ECON 4738. Advanced Macroeconomic Policy. (4 cr. ; A-F only; Every Fall & Spring)
For Econ B.S. majors only. Monetary vs. fiscal policy debate in context of underlying macroeconomic theory controversy. Comparison of Keynesian, Monetarist, Classical theories. Rational expectations, policy ineffectiveness, time inconsistency, rules versus discretion, budget deficits. Unemployment/inflation. prereq: [[3101, 3102] or equiv], Math 1271

ECON 4751. Financial Economics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Financial decisions of firms/investors. Determination of interest rates and asset prices. Role of risk/uncertainty. Emphasizes economic models. prereq: [3101 or equiv], [MATH 1271 or equiv], one sem statistics

ECON 4758. Advanced Financial Economics. (4 cr. ; A-F only; Every Spring)
Efficiency/role of financial markets. Theoretical concepts, empirical evidence. Price of financial assets, value of investment projects, risk management trading strategies. prereq: 3101, [3102 or equiv], [Math 1271 or equiv], [Stat 3011 or equiv], [Math 1272 or equiv]

ECON 4821. Public Economics. (3 cr. ; A-F only; Every Fall & Spring)
Competing views on proper role of government in economy. Effects of tax/spending policies, taking into account private agents' response to government actions/ways government officials may use powers. Optimal policies. Applications primarily to U.S. government. prereq: [3101, 3102] or equiv

ECON 4828. Advanced Public Economics. (4 cr. ; A-F only; Every Fall & Spring)
Competing views/models on the role of government in an economy. Effects of tax and spending policies, private agents' response to government actions; optimal policies. Financial crisis and government policies on subsidizing private debt and private housing. Climate change policy of government. Government health care reforms. Tax issues of MNCs, tax evasion, industry relocations and corporate taxes. prereqs: Econ 3101 and 3102; advise completing Econometrics before taking this course.

ECON 4831. Cost-Benefit Analysis. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Evaluation of benefits and costs of public projects and programs. Issues connected with definition and measurement of benefits and costs. Rate of return and discount. Market imperfections, risk, uncertainty. Case studies. prereq: ECON 3101

ECON 4960. Topics in Economics. (; 4 cr. [max 8 cr.] ; A-F only; Periodic Fall & Spring)
Topics specified in Class Schedule. prereq: [3101 or 3102 or equiv], MATH 1271

ECON 4968. Advanced Topics in Economics. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Topics specified in Class Schedule. prereq: [[3101, 3102] or equiv], MATH 1271, [Stat 3011 or equiv], successfully complete at least two 4xxx level UMNTC economics courses.

ECON 4970. Advanced Topics: Economics. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Topics specified in Class Schedule, prereq: [[3101, 3102] or equiv], MATH 1271, [Stat 3011 or equiv], successfully complete at least two 4xxx level UMNTC economics courses.

ECON 4993. Directed Study. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study in areas not available in regular course offerings. prereq: dept consent

ECON 5109. Game Theory for Engineers. (; 3 cr. ; A-F only; Every Spring)
Introduction to game theory. Utility theory, non-cooperative/cooperative games, bargaining theory. Games in normal/extensive form. Nash equilibria/refinements. prereq: [Math 2283, 2373, 2374, 3283] or Math 4606, [M.S./Ph.D. student in engineering or comp sci or info tech or operations mgmt] or instr consent

ECON 5890. Economics of the Health-Care System. (; 3 cr. ; A-F or Audit; Every Fall)
Economic analysis of U.S. health-care sector. Emphasizes problems of pricing, production, distribution. Health-care services as one factor contributing to nation's health. prereq: 3101 or instr consent

Ecuador (ECDR)

ECDR 1004. Intermediate Spanish IV. (4 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ECDR 3011W. Spanish Grammar and Composition Workshop. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
ECDR 3011W Spanish Grammar and Writing Workshop is an intensive writing course designed to develop and strengthen the understanding and management of language skills acquired in previous courses and to develop knowledge about various cultures in Latin America and Ecuador. This course seeks to integrate the skills of speaking, writing, reading and understanding the real world of Ecuadorian and Latin American culture through the analysis of texts of varied socio-cultural, economic, political and other learning resources. The reading and writing tasks of this course will allow students through the reading

and analysis of different texts an approach to the reality of Ecuadorian and Latin American culture. Students will be exposed to learning in real contexts and to the appropriate use of vocabulary. During the course, each student will produce a series of original compositions with the objective of learning to write texts in a clear, precise and formal in Spanish using various rhetorical strategies. It is a course that will give students the possibility of acquiring basic guidelines to improve their style and composition.

ECDR 3015W. Spanish Composition and Communication. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
ECDR Spanish 3015W is a Spanish course with an emphasis on Spanish Composition and Communication designed to develop and strengthen oral and written language and communication skills acquired in courses 1001 - 1004. This course seeks to integrate in real contexts the skills of speaking, writing, reading , listening and understanding of Spanish at a higher level. This course will systematically expose students to a variety of texts within the context of Ecuador and Latin America that will enable them to improve their level of comprehension, analysis, discussion, reflection, enrich their vocabulary and accelerate their reading rhythm and comprehension. The development of language skills will allow students to gain a better understanding of Ecuador: their culture, history, economy and politics.

ECDR 3021. Advanced Spanish. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ECDR 3030W. Introduction to Latin American Cultures. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
ECDR 3030W, Introduction to Latin American Cultures, is an intensive writing course designed to develop and strengthen the understanding and management of language skills acquired in previous courses and to develop knowledge about various cultures in Latin America and Ecuador. This course seeks to integrate the skills of speaking, writing, reading and understanding the real world of Ecuadorian and Latin American culture through the analysis of texts and other learning resources. Course 3030W will evaluate the concept of "culture" from an intercultural perspective taking into account the cultural diversity of Ecuador and Latin America. 3030W introduces students to key writing and cultural analysis skills. The writing tasks of this course will allow students to approach the reality of Ecuadorian and Latin American culture through the reading and analysis of different texts. Students will be exposed to learning in real contexts and to the appropriate use of vocabulary. At the end of the program students must demonstrate competence in the handling of components of cultural analysis and familiarity with research components in cultural topics. This course offers students a panoramic view of the Latin American and Ecuadorian narrative, placing it in their historical and cultural contexts so as to allow an analysis of the styles of the mixture of our peoples. It is a course that will provide students with the possibility of acquiring basic guidelines to identify literary styles and narrative strategies.

Educational Psychology (EPSY)

EPSY 1261. Understanding Data Stories through Visualization & Computing. (MATH; 3 cr. ; Student Option; Every Fall & Spring)
Academics and researchers have long used data & visualization to support and illuminate particular narratives in their scholarship. Today, data visualizations are found not only in the pages of academic journals; many non-academics, including journalists and activists, use increasingly complex data visualizations and statistical summaries to convey salient information and storylines. This course will help students build on their statistical thinking and understanding learned in high school to think critically about the use of summaries and visualization and their role in the data narrative. It will also cover the use of computational tools and methods for creating data summaries and visualization that facilitate seeing patterns and relationships in data, and producing better narrative through communicating with data. Students will learn course material through in-class activities and projects conducted in cooperative learning groups and through assignments requiring the application of concepts and technology presented in class to additional real-world examples of data visualization.

EPSY 1281. Psychological Science Applied. (SOCS; 4 cr. ; A-F only; Every Fall & Spring)
The course introduces students to applied psychology as a discipline and reviews fundamental principles of psychology through the lenses of applied and professional areas that are the foci of CEHD majors. Specifically, through the lenses of education, we review principles of learning, memory, development, intelligence, and interventions; through the lenses of health and wellness, we review personality, biological, social, and cognitive bases of normal and abnormal behavior, as well as treatments; and, through the lenses of business and organizations, we review principles of motivation, sensation perception, and social behavior. Thus, these psychological principles are considered theoretically, empirically, and through examples for application, with lab discussions and projects emphasizing education, business, health and wellness. The course serves as a foundation for future coursework in education, health sciences, and psychology, and is consistent with the APA?s public education effort to demonstrate how the science and application of psychology benefits society and improves lives.

EPSY 1905. Beginners' Chess and 21st Century Skills. (; 3 cr. ; Student Option; Periodic Fall)
Examination of the basic components of chess, computer-based chess, how chess players think, including visual-spatial thinking and critical thinking, the psychology of critical thinking and other 21st Century reasoning skills, research on chess cognition, and the international chess community.

EPSY 2601. Understanding Differences, Disabilities, and the Career of Special Education. (; 4 cr. ; A-F only; Every Fall & Spring)
Impact of disabilities on individual/family. Support systems for persons with disabilities, approaches for advocacy. Employ reflective practices when considering concept of disability. This course has an imbedded school-based practicum.

EPSY 3101. Creativity and Intelligence: an Introduction. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)
Classic/contemporary theories of creativity/ intelligence, their development, implications for behavioral/social sciences and psychological/ educational practices.

EPSY 3105. Community Engaged Research Experiences in K-12 Contexts. (DSJ; 3 cr. ; A-F only; Every Spring)
This course is designed as an introduction to community-engaged, educational research. Students will learn about educational research methodology that includes descriptive, experimental, and applied methods. We will highlight the ways that data is collected and analyzed to answer various types of research questions. By participating in the course activities, students will learn skills to develop a research question and design and conduct their own study. The course activities will build on existing research partnerships in Minneapolis and St. Paul Public Schools. Students enrolled in the course will be able to work with teachers, students, and families as a part of their experience. The course instructor(s) have large-scale, existing research projects that explore various mechanisms (technology, parent involvement, culturally responsive pedagogy) to support middle school students' science learning. We will create a community of undergraduate scholars that is simultaneously social and intellectual. The course lectures, activities, and research experiences are designed to create an environment that respects and values the students' diverse cultural backgrounds.

EPSY 3119. Learning, Cognition, and Assessment. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Principles of learning, cognition, cognitive development, classroom management, motivation, instruction, and assessment. Topics: behaviorism, cognitive and social constructivism, human information processing theory, intelligence, knowledge acquisition, reasoning skills, scholastic achievement, standardized testing, reliability, validity, student evaluation, performance assessment, and portfolios.

EPSY 3132. Psychology of Multiculturalism in Education. (DSJ; 3 cr. ; A-F or Audit; Every Spring)
Course critically examines social and cultural diversity in the United States, confronting social issues of poverty, handicappism, homophobia,

racism, sexism, victim-blaming, violence, and so on, and presenting models for change. Students examine how and why prejudices develop.

EPSY 3264. Basic and Applied Statistics. (MATH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Introductory statistics. Emphasizes understanding/applying statistical concepts/ procedures. Visual/quantitative methods for presenting/analyzing data, common descriptive indices for univariate/bivariate data. Inferential techniques.

EPSY 3301. Introduction to Educational Psychology. (SOCS; 3 cr. ; Student Option No Audit; Every Fall)
History, current work. Future promise of educational psychology. Major topics in educational psychology. Focuses on interplay between theory, empirical research, and practical applications.

EPSY 3302. Introduction to Communication Skills for Educational and Community Settings. (3 cr. ; Student Option No Audit; Every Fall)
Working with diverse individuals/groups in educational/community settings. Communication skills/concepts. Self-reflection on communication style.

EPSY 3303. Educational Psychology Undergraduate Practicum. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall)
This culminating course familiarizes students with the principles and practice of applied psychology in educational and community settings. Through supervised fieldwork experiences in either research or practice settings, students will develop an understanding of ethical considerations in educational psychology and explore how psychological research can be used to advance the practice of psychology in applied settings. This course is designed for undergraduate students completing an Educational Psychology undergraduate minor or the Special Education major. The course meets for 120 minutes weekly, and students complete 90 hours of fieldwork (approximately 8-10 hours/week). This is a community-engaged learning course. Fieldwork experiences can include: * A research experience conducted with an approved Educational Psychology faculty member. * A practical experience in an approved community engaged service-learning setting. Note: students in the special education major must complete fieldwork related to disabilities and/or special education.

EPSY 3303H. Honors Educational Psychology Undergraduate Practicum. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall)
This culminating course familiarizes students with the principles and practice of applied psychology in educational and community settings. Through supervised fieldwork experiences in either research or practice settings, students will develop an understanding of ethical considerations in educational psychology and explore how psychological research can be used to advance the practice of psychology in applied settings. This course is designed for undergraduate students completing an Educational Psychology undergraduate minor or the Special Education major. The course meets for 120 minutes weekly, and students complete 90 hours of fieldwork (approximately 8-10 hours/week). Honors students will be involved in Directed Faculty Research conducted with an approved Educational Psychology faculty member. The research project will be used to direct the honors thesis. In addition, honors students will present their research at the Undergraduate Research Symposium Note: students in the special education major must complete fieldwork related to disabilities and/or special education.

EPSY 3701. Practicum: Field Experience in General Education - Inclusive Classrooms. (; 1-2 cr. ; S-N only; Every Fall & Spring)
Field-Based Practicum. Observe and actively participate in an inclusive (with and without disabilities) general education classroom. An emphasis is placed on communication skills and reflective practice.

EPSY 3801. The Science of Human Resilience and Wellbeing: Foundational Knowledge for Career and Life Success. (SOCS; 3 cr. ; A-F or Audit; Every Spring)
This course is for any undergraduate student interested in learning about and applying the theory and practice as it relates to resilience and wellbeing. This course integrates key cross-cutting, scientific findings from a range of psychological disciplines, including positive psychology, clinical psychology, developmental psychology, neuropsychology, and social psychology. Stated simply, resilience refers to the human capacity and ability to both survive and thrive in the face of life circumstances. Students will develop a deep understanding of the theoretical concepts of stress, resilience, and wellbeing, as well as specific resilience practices scientific research has shown enable people to better manage and bounce back from stressful situations and enhance their social, emotional, and behavioral functioning in career and personal aspects of life.

EPSY 3802. Contemporary Issues in School Psychology. (3 cr. ; A-F only; Every Fall)
This survey-level course is designed to facilitate understanding of the intersections of psychological processes with current issues facing the U.S. schools and is targeted toward students interested in working with children and adolescents in school settings. Students will develop basic understanding of scholarship and professional opportunities in school psychology and related fields. The course is designed to overview how psychological processes impact students, teachers, educational staff, families, and school communities through use of data and research to inform school practices that promote safe and healthy school environments, support students? mental health, and meet the needs of unique learners. Lectures, discussions, and interactive activities will be used to facilitate learning.

EPSY 4001. Teaching Students with Special Needs in Inclusive Settings. (1 cr. ; A-F only; Every Spring)
Historical perspectives, definitions/ professional language, characteristics, needs, service delivery systems for each area of exceptionality. prereq: Must be enrolled in either the initial teaching licensure program for music education or agricultural education students. All other initial teaching licensure candidates should enroll in 5015 and 5016.

EPSY 5001. Learning, Cognition, and Assessment. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Principles of learning, cognition, cognitive development, classroom management, motivation, instruction, assessment. Behaviorism, cognitive/social constructivism, human information processing theory. Intelligence, knowledge acquisition, reasoning skills, scholastic achievement, standardized testing, reliability/validity, student evaluation, performance assessment, portfolios, demonstrations. Applications to instruction/ organization of curricular materials. prereq: MEd/initial licensure student or CLA music ed or preteaching major or instr consent; psych course recommended

EPSY 5015. Teaching Students with Special Needs in Inclusive Settings. (1 cr. ; A-F only; Every Summer)
Areas of exceptionality defined in federal/state regulations. Historical perspectives, definitions, etiology, characteristics, needs, and service delivery systems. Collaborating with special education personnel. prereq: Enrolled in a teacher initial licensure program

EPSY 5016. Teaching Students with Special Needs in Inclusive Settings. (1 cr. ; A-F only; Every Fall & Spring)
Attending to constant transitions/development in which children/adolescents negotiate their road to adulthood. How to foster learning/ positive development. prereq: Enrolled in teacher initial licensure program

EPSY 5017. Teaching Exceptional Students in General Education Classrooms. (2 cr. ; A-F or Audit; Every Summer)
This course will provide an overview of the areas of exceptionality defined in federal and state regulations. The focus of this course will be on historical perspectives, definitions, etiology, characteristics, needs, and service delivery systems for each area of exceptionality as well as the general educator?s role in collaborating with special education personnel in order to meet the needs of students with special needs.

EPSY 5101. Intelligence and Creativity. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Contemporary theories of intelligence and intellectual development and contemporary theories of creativity and their implications for educational practices and psychological research.

EPSY 5114. Psychology of Student Learning. (; 3 cr. ; A-F or Audit; Every Fall & Spring)

This course is an introduction to the theories, data, and methods of Educational Psychology most relevant to understanding student thinking and learning. The first third of the course reviews those aspects of cognitive development that are foundational for education. The second third considers how cognitive psychology informs questions of learning, memory, knowledge, and transfer. With this background in place, the final third of the course will focus on the classroom: on instruction, motivation, individual differences, and group differences. The course concludes by considering the neural correlates of classroom learning.

EPSY 5116. Education of the Gifted and Talented. (; 3 cr. ; Student Option No Audit; Every Spring)
Theories of giftedness, talent development, instructional strategies, diversity and technological issues, implications for educational practices and psychological inquiry, and international considerations.

EPSY 5119. Mind, Brain, and Education. (; 3 cr. ; Student Option No Audit; Periodic Spring)
How educationally relevant skills/concepts develop in both typical/atypical children. prereq: 3301 or equiv

EPSY 5135. Human Relations Workshop. (; 4 cr. ; Student Option; Every Fall & Summer)
Experiential course addressing issues of prejudice and discrimination in terms of history, power, and social perception. Includes knowledge and skills acquisition in cooperative learning, multicultural education, group dynamics, social influence, effective leadership, judgment and decision-making, prejudice reduction, conflict resolution.

EPSY 5151. Cooperative Learning. (; 3 cr. ; Student Option; Every Spring)
Participants learn how to use cooperative learning in their setting. Topics include theory and research, teacher's role, essential components that make cooperation work, teaching social skills, assessment procedures, and collegial teaching teams.

EPSY 5157. Social & Developmental Psychology of Education. (; 3 cr. ; A-F or Audit; Every Fall)
Social and developmental psychology provide underpinnings for a range of methods for conducting research in real-world settings. They also lay conceptual foundations for understanding a range of social and developmental processes. The course will cover a full range of topics within social and developmental psychology, plus selected topics in personality psychology, and examine their implications for understanding and structuring educational and other professional settings. Discussions will include a strong focus on educator and practitioner applications of the research.

EPSY 5200. Special Topics: Psychological Foundations. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Focus on special topics in psychological and methodological concepts relevant to advanced educational theory, research, and practice not covered in other courses.

EPSY 5216. Introduction to Research in Educational Psychology and Human Development. (3 cr. ; A-F or Audit; Every Fall)
Designing/conducting a research study. Reviewing literature, formulating research problem, using different approaches to gather data, managing/analyzing data, reporting results. prereq: 5261 or intro statistics course

EPSY 5221. Principles of Educational and Psychological Measurement. (; 3 cr. ; Student Option; Every Fall)
Concepts, principles, and methods in educational/psychological measurement. Reliability, validity, item analysis, scores, score reports (e.g., grades). Modern measurement theories, including item response theory and generalizability theory. Emphasizes construction, interpretation, use, and evaluation of assessments regarding achievement, aptitude, interests, attitudes, personality, and exceptionality.

EPSY 5243. Principles and Methods of Evaluation. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Introductory course in program evaluation; planning an evaluation study, collecting and analyzing information, reporting results; overview of the field of program evaluation.

EPSY 5244. Survey Design, Sampling, and Implementation. (; 3 cr. ; Student Option; Every Fall)
Survey methods, including mail, phone, and Web-based/e-mail surveys. Principles of measurement, constructing questions/forms, pilot testing, sampling, data analysis, reporting. Students develop a survey proposal and a draft survey, pilot the survey, and develop sampling/ data analysis plans. prereq: [5221 or 5231 or 5261 or equiv], [CEHD grad student or MEd student]

EPSY 5245. Advanced Survey Data Analysis for Categorical and Rating Scale Data. (; 1 cr. ; Student Option; Periodic Spring)
Practical course. Specific nature of survey data (typically categorical or ordinal). Appropriate data analytic methods. prereq: 5244, 5261

EPSY 5246. Evaluation Colloquium: Psychological Foundations. (; 1 cr. [max 8 cr.] ; S-N or Audit; Periodic Fall & Spring)
Informal seminar of faculty and advanced students interested in the issues and problems of program evaluation. prereq: 5243 or EdPA 5501

EPSY 5247. Qualitative Methods in Educational Psychology. (; 3 cr. ; Student Option; Every Fall)
Introduction to qualitative methods of inquiry. Contrasting different research traditions (e.g., case study, phenomenology, ethnography, social interactionism, critical theory). Practice with field notes, observations, and interviewing. Use of NVIVO to track/code data. prereq: Graduate student or Applied Psychology in Educational and Community Settings Minor

EPSY 5261. Introductory Statistical Methods. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
EPSY 5261 is designed to engage students in statistics as a principled approach to data collection, prediction, and scientific inference. Students first learn about data collection (e.g., random sampling, random assignment) and examine data descriptively using graphs and numerical summaries. Students build conceptual understanding of statistical inference through the use of simulation-based methods (bootstrapping and randomization) before going on to learn parametric methods, such as t-tests (one-sample and two-sample means), z-tests (one-sample and two-sample proportions), chi-square tests, and regression. This course uses pedagogical methods grounded in research, such as small group activities and discussion. Attention undergraduates: As this is a graduate level course, it does not fulfill the Mathematical Thinking Liberal Education requirement. If you would like to take a statistics course in our department that fulfills that requirement, please consider EPSY 3264.

EPSY 5262. Intermediate Statistical Methods. (; 3 cr. ; Student Option; Every Fall & Spring)
Application of statistical concepts/procedures. Analysis of variance, covariance, multiple regression. Experimental design: completely randomized, block, split plot/repeated measures. prereq: 3264 or 5261 or equiv

EPSY 5271. Becoming a Teacher of Statistics. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Current methods of teaching first courses in statistics. Innovative teaching methods, materials, and technological tools. Types of first courses, reform recommendations, goals for student learning, recommended content, teaching methods, technology, student assessment. prereq: 5261 or equiv

EPSY 5272. Statistics Teaching Internship. (; 1-3 cr. ; S-N only; Every Fall & Spring)
Supervised teaching experience. prereq: Grad student, instr consent

EPSY 5400. Special Topics in Counseling Psychology. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Theory, research, and practice in counseling and student personnel psychology. Topics vary.

EPSY 5401. Counseling Procedures. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Emphasis on the counseling relationship and principles of interviewing. Case studies, role playing, and demonstration. For individuals whose professional work includes counseling and interviewing. prereq: Upper div student

EPSY 5402. Counseling History and Theories. (; 3 cr. [max 4 cr.] ; A-F only; Every Fall)
This course provides a broad introduction to professional counseling. Students will explore the major historical and contextual factors that have influenced the counseling field, with particular focus on theories and models of counseling practice. Roles and responsibilities of the professional counselor

will also be discussed. Coursework will emphasize professional development via self-reflection, awareness of context and culture, and cultivation of counselor identity.

EPSY 5403. Counseling Diverse Populations. (; 3 cr. ; A-F or Audit; Every Spring)
This course addresses counseling implications for diverse individuals and families. Students will understand the impact of worldview and other factors such as ethnicity, culture, religious preference, socioeconomic status, gender identity, sexual orientation, and disabilities in community, higher education, and school settings. Students will examine their own worldviews as it relates to the topics discussed. Advocacy and social justice practices for working with diverse populations will also be addressed.

EPSY 5404. Group Counseling. (; 3 cr. ; A-F or Audit; Every Spring)
This course addresses foundations of group counseling that can be applied to multiple settings with a variety of diverse populations and age groups. Essential group leadership skills, types of groups, stages, planning, and evaluating groups will be covered. Additional topics include legal and ethical issues involved in group counseling, group dynamics, and therapeutic factors.

EPSY 5405. Career Counseling. (; 3 cr. ; A-F or Audit; Every Fall)
This course covers career development theories, career counseling procedures and techniques, career assessment/interpretation, and career development programming across the lifespan. Career interventions and resources will be discussed that relate to diverse populations within school, community, and higher education settings.

EPSY 5406. Ethics in Counseling. (; 3 cr. ; A-F only; Every Fall)
This course will help students deeply explore the ethical standards and legal principles that must be referenced when making decisions in the practice of counseling. Students will learn how to apply the ethical standards and federal/state legal statutes to complex counseling cases. Ethical standards related to assessment, diagnosis, and practice are discussed in relation to counseling diverse populations in school, community, and higher education settings.

EPSY 5407. Diagnosis and Treatment in Counseling. (; 3 cr. [max 4 cr.] ; A-F only; Every Spring)
Etiology, symptom patterns, and assessment/ treatment for various psychological disorders. Models of diagnosis. Empirically validated psychological assessment and counseling methods. Attention to cultural competency in assessment, diagnosis, and treatment.

EPSY 5408. Evidence-Based Counseling Relationships. (3 cr. ; A-F only; Every Fall)
This course introduces students to fundamental techniques and skills of professional counseling. Students will practice basic interviewing skills, with a focus on rapport-building and evidence-based counseling relationships. Specific techniques for facilitating exploration, insight, and change will also be covered. Finally, students will integrate the knowledge of counseling models and basic skills through a series of videotaped counseling practice and self-reflection assignments.

EPSY 5409. Trauma and Crisis Counseling. (3 cr. ; A-F only; Every Summer)
This course provides an overview of theories and skills commonly used by counselors working with clients in crisis. The first half of the course will cover assessment, impacts, and treatment of psychological trauma, including trauma-informed approaches to crisis situations. The second half of the course will cover specific types of crises commonly seen by counselors in a range of community and educational settings, with a focus on ethical and multiculturally-competent practice. There will be an emphasis on resiliency and self-care throughout the course.

EPSY 5411. Introduction to College Counseling and Student Affairs. (3 cr. ; A-F only; Every Fall)
This course introduces students to foundational knowledge, skills, and resources important for work in higher education counseling and student affairs settings. Students will learn and apply theories of leadership, organizational change, and student development important for the field, with a focus on recognizing the diversity of higher educational contexts. Orientation to professional higher education counseling (e.g. history of the profession, professional organizations, current labor market strategies) will also be emphasized. Finally, students will consider current trends in higher education, including assessment and evaluation, the impact of technology on student affairs work, and individual differences among institutions and students.

EPSY 5414. School Counselor Accountability, Advocacy, and Leadership. (3 cr. ; A-F only; Every Spring)
This course will equip school counselors-in-training with the knowledge and skills to develop intentional, data-driven school counseling programs. Focus will be given to evidence-based counseling interventions. Students will learn how to use data both in the development and evaluation of their school counseling program. Students will practice using data to advocate while also developing their leadership skills.

EPSY 5415. Counseling Children and Adolescents. (; 3 cr. [max 4 cr.] ; A-F or Audit; Every Fall & Summer)
Development, issues, and needs of children, kindergarten through high school ages. Counseling/developmental theory/strategies. Cultural diversity, legal/ethical issues in counseling children/adolescents. prereq: Grad student or MEd student or K-12 [counseling endorsement or licensure] student

EPSY 5416. Introduction to Clinical Mental Health Counseling. (3 cr. ; A-F only; Every Fall)
This course will help students understand the foundations of the clinical mental health counseling profession. The major focus will be on developing a counselor identity and learning about the history and evolution of mental health counseling as a field.

EPSY 5421. Leadership and Administration of Student Affairs. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Theoretical approaches, administrative structure, and evaluation methods used in college/university student affairs.

EPSY 5429. Advanced Concepts in Community Counseling. (3 cr. ; A-F only; Every Spring)
This course provides advanced counseling students a deeper opportunity to research and discuss recent trends and new ideas in community counseling. Current research and practice around addiction and co-occurring disorders, alternative health treatments, neurocounseling, and genetics will be covered. Students will also become familiar with the history and current role of psychopharmacology in counseling, including current treatment guidelines for common psychotropic medications. Finally, students will investigate and discuss ?big ideas,? such as the use of technology, for the future of counseling practice in both community mental health settings.

EPSY 5435. Introduction to School Counseling. (3-6 cr. ; A-F only; Every Fall & Spring)
History/evolution of school counselor role in schools. Duties/demands of school counselor. Examine comprehensive guidance programming in K-12 schools. Issues in school counseling profession. prereq: CSPP grad student in school counselor prog or instr consent

EPSY 5436. Crisis Management and Consulting in Schools. (3 cr. ; A-F or Audit; Every Fall)
Issues, topics, problems. Diversity in school counseling. Review, discussion, analysis of current literature. Students develop prevention, intervention, guidance programs for K-12 schools. prereq: CSPP grad student in school counselor program or instr consent

EPSY 5437. Evidence-Based Practices in Counseling. (3 cr. ; A-F only; Every Fall)
This two-semester capstone course is a hands-on integration of science and practice in professional counseling. Students will learn research techniques relevant and accessible to counselors in full-time practice, including assessment of measurable client outcomes, evaluation of evidence-based counseling practice, and integration of scientific literature into professional work. The bulk of coursework will be a semester-long research project informed by students' practicum placements, including a literature review, presentation of original single-case research, and an empirical research proposal.

EPSY 5439. Case Conceptualization and Treatment Planning. (3 cr. ; A-F only; Every Spring)
This course introduces students to fundamental assessment, interviewing, case

conceptualization, and treatment planning skills used by counselors in community and higher education settings. Students will have the opportunity to observe and practice intake interviews, to conceptualize clients from a culturally-informed, biopsychosocial perspective, and identify and communicate measurable treatment goals and effective interventions. Students will also work in groups to more deeply investigate and apply various approaches to case conceptualization and receive feedback from peers.

EPSY 5451. College Students Today. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Issues involving diverse populations of students in colleges/universities. Student development theory, students' expectations/ interests, how college affects student outcomes. Role of curricular/extracurricular activities and of student-faculty interactions.

EPSY 5461. Cross-Cultural Counseling. (; 3 cr. ; A-F or Audit; Every Fall)
Effect of cross-cultural/cross-national psychological differences in human traits/ characteristics. Framework for development/ implementation of counseling interventions.

EPSY 5481. Practicum in School Counseling. (; 3 cr. ; A-F only; Every Spring)
This course is designed to support student growth in their development as a school counselor and to add to the training that they receive at their on-site placements. While enrolled in this course, students will be counseling clients in schools for the first time since entering this program. This class is designed to provide group supervision and support during their time on site. It is also designed to provide classroom instruction in areas that are relevant to the practice of school counseling. The course content will be delivered via class discussion, case presentations, tape review and online discussions. During the practicum, students will accrue a minimum of 100 hours, but will not exceed 200 hours at their practicum site. Faculty will collaborate biweekly with site supervisors to ensure that their needs are met and to provide support for the individual supervision that takes place on site.

EPSY 5482. Practicum in Community and Higher Education Counseling. (; 3 cr. ; A-F only; Every Summer)
This course is designed to support student growth in their development as a counselor and to add to the training that they receive at their on-site placements. While enrolled in this course, students will be counseling clients in various settings for the first time since entering this program. This class is designed to provide group supervision and support during their time on site. It is also designed to provide classroom instruction in areas that are relevant to the practice of counseling. The course content will be delivered via class discussion, case presentations, tape review and online discussions.

EPSY 5483. Internship I. (; 3 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Supervised practice in counseling with individuals and groups; emphasizes systematic evaluation of student?s counseling practice through direct observations, video, and audio tapes.

EPSY 5484. Internship II. (; 3 cr. [max 4 cr.] ; A-F or Audit; Every Spring)
Intermediate supervised practice in counseling with individuals and groups; emphasizes ethical issues with systematic evaluation of student?s practice through direct observations, video, and audio tapes.

EPSY 5604. Transition From School to Work and Community Living for Persons With Special Needs. (3 cr. ; Student Option; Every Spring & Summer)
Use of strategies/models for improving transition of youth from school to work and community living. Course content that specifically addresses all phases of student assessment, individualized transition planning. Parent, family, and student involvement in designing post school options. Community-based services (employment, residential living, social and recreational services, etc). Comprehensive interagency approaches.

EPSY 5605W. Collaborative Practices for the Special Educator. (WI; 3 cr. ; A-F only; Every Spring)
Skills/knowledge required to consult/collaborate with school personnel, families, other professionals to maintain effective educational support.

EPSY 5609. Family-centered Services. (; 3 cr. ; A-F or Audit; Every Fall)
Methods for collaborating with families in education of children with disabilities. Family-centered approach to design of educational plans/procedures. Multicultural perspectives of family life/expectations for children.

EPSY 5611. Research-based Practices in Academic and Behavior Disabilities. (3 cr. ; A-F only; Every Fall)
Research that provides conceptual basis to aid in understanding of students with academic difficulties. Develop critical thinking skills through examination of research-based practices.

EPSY 5613. Foundations of Special Education I. (DSJ; 3 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Organization of educational programs/services for people with disabilities. First course for students seeking to become licensed in special education.

EPSY 5614W. Assessment and Due Process in Special Education. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Participants will learn basic standardized assessment and how it directly relates to special education. In addition, students will use the assessment as part of an ongoing process for making instructional programming decisions. Students will apply skills in designing and evaluating assessment plans and in making eligibility decisions.

EPSY 5616W. Classroom Management and Behavior Analytic Problem Solving. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Assumptions, principles, procedures of problem solving approach to analyzing behavior/ programs for classroom management. Conducting observations, intervening, evaluating behavioral change.

EPSY 5617. Academic and Social Interventions for Students with Mild to Moderate Disabilities. (3 cr. ; A-F only; Every Spring)
Use problem solving model to make data-based decisions regarding implementation and evaluation of instruction for students with academic and behavioral difficulties. prereq: instr consent

EPSY 5618. Specialized Interventions for Students With Mild/Moderate Disabilities in Reading & Written Language. (3 cr. ; A-F or Audit; Every Fall)
The purpose of this course is to prepare teachers of students at risk and with academic disabilities to address their specific learning needs in the area of reading and written language, using a data-based decision-making approach. Through course readings, lectures, discussions, cooperative group work, microteaching, and field experiences, students will gain knowledge and skills to address the needs of children with difficulties or disabilities that affect reading and writing, including children with dyslexia and dysgraphia.

EPSY 5619W. Specialized Interventions in Mathematics for Students with Mild to Moderate Disabilities. (WI; 3 cr. ; A-F only; Every Fall)
Mathematics interventions using a data-based, decision-making approach. Instructional strategies. Prevention/remediation of mathematics difficulties.

EPSY 5621. Assessment and Instructional Design for Students with Developmental Disabilities. (; 3 cr. ; A-F or Audit; Every Spring)
Methods/materials course. Functional/ standards-based approaches to promoting academic learning in students with developmental disabilities. prereq: 5613, 5614

EPSY 5622. Programs and Curricula for Students with Developmental Disabilities. (; 3 cr. ; Student Option; Every Summer)
Developing programs/curricula for students with moderate, severe, profound developmental delays, as well as severe multihandicapping conditions. Special consideration given to preparing children/youth for integrated community environments. prereq: 5621 or [5661 and 5662]

EPSY 5623. Ethics in Applied Behavior Analysis. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
This course explores ethical and professional considerations that pertain to the practice of applied behavior analysis as well as ethical and disciplinary standards of the profession. Specifically, this course examines the Professional and Ethical Compliance Code for Behavior Analysts. Emphasis will be

placed upon ethical and professional conduct and legal issues relevant to BCBA level practitioners. Topics such as informed consent, due process, protection of confidentiality, and selection of least intrusive, least restrictive behavior change procedures will be discussed. This course will focus on ethical decision-making processes. Issues related to cultural and ethnic diversity and ethics in applied behavior analysis will also be explored.

EPSY 5624. Biomedical and Physical Impairments of Students with Developmental Disabilities. (; 2 cr. ; A-F or Audit; Every Fall & Summer)
Anatomy, physiology, kinesthiology. Central/ peripheral nervous system. Prenatal, perinatal, postnatal development. Physically disabling conditions. Management/education procedures.

EPSY 5625. Education of Infants, Toddlers, and Preschool Children with Disabilities: Introduction. (; 2 cr. ; A-F or Audit; Every Fall)
Overview of the issues, problems, and practical applications in designing early intervention services for young children with disabilities and their families.

EPSY 5627. Seminar: Advanced issues in Learning Disabilities. (3 cr. ; A-F only; Every Fall & Summer)
Read, reflect, lead discussions related to issues in field of LD. Topics examined through relevant research in field of LD. prereq: Special Education graduate or licensure student or instr consent

EPSY 5628. Characteristics of Moderate to Severe Learning Disabilities. (3 cr. ; A-F only; Every Fall & Summer)
Characteristics of moderate/severe learning disabilities including (but not limited to) cognitive processing, language, attention/ memory, co-existing conditions. Dyslexia, dysgraphia, dyscalculia. prereq: Special Education graduate or licensure student or instr consent

EPSY 5629. Strategic Instructional Methods for Students Academically At-Risk. (3 cr. ; A-F only; Every Fall & Summer)
Knowledge/skills needed to teach KU-CRL research-based learning strategies for students considered academically at-risk. Content relevant to basic skills/content instruction for students in K-12 settings will be included. prereq: Special Education graduate or licensure student or instr consent

EPSY 5631. Module 1: Introduction to Augmentative and Alternative Communication. (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Terms/concepts related to augmentative/ alternative communication. Myths/facts regarding AAC.

EPSY 5632. Module 2: Evidence-based Methods for AAC Assessment and Intervention. (; 2 cr. ; A-F only; Every Fall & Summer)
Evidence-based tools to conduct augmentative/ alternative communication (AAC) assessments. AAC intervention plans. Data-driven strategies to evaluate progress.

EPSY 5636. Sensory Impairments of Students With Developmental Disabilities. (; 2 cr. ; Student Option; Every Fall)
Characteristics of learners with visual/auditory impairments. Design of instructional programs to remediate or circumvent disabilities, including use of prosthetic devices. prereq: 5613, 5614

EPSY 5637. Core Practices in Special Education: Foundations of Special Education. (; 1 cr. ; S-N only; Every Fall)
This course is an online module designed to be taken the first semester of a 4-semester sequence in the Clinical EBD Licensure Program. All materials necessary for proficient completion of the course will be delivered via on-line course. There will be no additional readings associated with this online module. prereq: Enrolled in Special Ed MEd or Special Ed ILP MEd program with EBD Residency-Based subplan

EPSY 5638. Core Practices in Special Education: IEP Writing. (; 1 cr. ; S-N only; Every Spring)
This course is an online module designed to be taken the second semester, in conjunction with the IEP Process course, of a 4-semester sequence in the Clinical EBD Licensure Program. All materials necessary for proficient completion of the course will be delivered via on-line course. There will be no additional readings associated with this online module.

EPSY 5641. Foundations of Deaf Education. (3 cr. ; A-F only; Every Fall)
Philosophical foundations of deaf and hard of hearing (DHH) education. Engage in discussion, debates and processes that have influenced deaf education, communication methodologies and placement options in the US. Considered from the perspective of deaf children, adults and their families.

EPSY 5642. Early Intervention for Infants, Toddlers and Families: Deaf and Hard of Hearing. (; 3 cr. ; A-F only; Every Summer)
Early identification and intervention with deaf and hard of hearing children including the development of ASL and English, Emergent Literacy in the homes and the role of Deaf Mentors. Emphasis on the importance of early exposure to fully accessible language and addressing the issue of language deprivation. prereq: Preservice teacher in deaf education licensing program or instr consent.

EPSY 5643. Seminar: Identity, Culture and Diversity in Deaf Education. (2 cr. ; A-F only; Every Fall)
Reflecting on your own identity as a future teacher of the deaf and how to facilitate the identity development of your students. Having a deep understanding of the diversity of students and their families and how best to foster these relationships and communication. Synthesis of previously learned material into practice.

EPSY 5644. Early Childhood Language and Literacy Development and Best Practices: Deaf and Hard of Hearing. (; 3 cr. ; A-F only; Every Fall)
Perspectives and best practices related to the development of early language and literacy skills in ASL and English for deaf and hard of hearing children. prereq: Preservice teacher in deaf education licensing program or instr consent

EPSY 5645. Deaf Plus: Educating and Understanding Deaf Students with Disabilities. (1 cr. ; A-F only; Every Spring)
Building an understanding of the complex issues and best practices involved in educating deaf learners with disabilities. Working with families and service providers, identifying resources, understanding identification, placement, assessment and intervention strategies to modify curriculum to work with deaf students with varying disabilities.

EPSY 5646. Best Practices Teaching Reading and Writing for School Age: Deaf and Hard of Hearing. (3 cr. ; A-F only; Every Spring)
Understanding and application of best practices for teaching reading/writing with DHH students in school age settings including incorporating bilingual strategies (making connections between ASL and English).

EPSY 5647. Spoken Language Practices and Assistive Technology: Deaf and Hard of Hearing. (; 2 cr. ; A-F only; Every Summer)
Study of the role and function of spoken English and Assistive technology in classrooms with students who are deaf or hard of hearing. Including understanding of speech and hearing mechanisms. Emphasis on application of spoken language practices in bimodal settings. prereq: EPSY 5642, 5644

EPSY 5651. Best Practices Teaching Content Areas: Deaf Education. (3 cr. ; A-F only; Every Spring)
Problem solving related to individual needs of students including educational policies/educational procedures in variety of educational settings.

EPSY 5652. Incorporating Academic ASL in the Classroom: Deaf and Hard of Hearing. (3 cr. ; A-F only; Every Fall)
Understanding/application of best practices incorporating Academic ASL in classrooms for students who are deaf or hard of hearing. Practice their own academic ASL skills while learning to facilitate their future students academic language. Demonstrating complex ASL across all subject areas using bilingual strategies and conceptually accurate signs.

EPSY 5653. ASL/English Structure and Application. (3 cr. ; A-F only; Every Fall)
Understanding the structure and assessment of ASL and English in deaf and hard of hearing children and how to analyze each language. Students gain knowledge of the parts of each language, various assessments prepare future teachers to evaluate and facilitate the development of ASL and English. Readings drawn from both bilingual and Deaf education.

EPSY 5654. Current Research, Issues Trends in Deaf Education. (1 cr. ; A-F only; Every Spring)
Examining current research, issue trends in Deaf Education to help prepare future teachers to develop an understanding of research and

apply critical thinking to analyze new issues, problem solve, and consider participating in research to practice opportunities that may arise during their career in Deaf Education.

EPSY 5656. Advanced Issues in Emotional Behavior Disorders. (3 cr. ; A-F or Audit; Every Fall)
Emphasis on children, youth, young adults. How emotional behavior disorders affects functioning in school/post-secondary life.

EPSY 5657. Interventions for Behavioral Problems in School Settings. (3 cr. ; A-F or Audit; Every Fall)
Comprehensive behavioral programs for students with social and or emotional disabilities. Instructing students with social and or emotional disabilities.

EPSY 5659. Foundations of Behavior Analysis. (3 cr. ; A-F only; Every Fall)
Behavior analysis is the science of behavior along a continuum of basic to applied learning processes, both operant and respondent. Applied behavior analysis (ABA) is concerned with the improvement and understanding of human behavior. It is the science in which strategies derived from the principals of basic behavior analysis are applied systematically to improve socially significant behavior and experimentation is used to identify the variables responsible for change (Cooper, Heron, & Heward, 2007). This course focuses on basic concepts and methodologies involved in behavior analysis, and their relation to other theories of learning and behavior. This course is designed for individuals interested in learning from the perspective of behavior analysis and individuals who are interested in learning theory as it applies to individuals with significant cognitive and language impairments. This course is also designed to prepare students for the Behavior Analyst Certification Board (BACB) exam.

EPSY 5661. Introduction to Autism Spectrum Disorder. (3 cr. ; A-F only; Every Fall)
Knowledge/skills needed to promote learning/ success for school age children with Autism Spectrum Disorder. Definition, etiology, and characteristics of ASD. Current research/ issues. Collaborative problem solving, family-professional partnerships, educational programming.

EPSY 5663. Assessment and Intervention for Individuals with Autism Spectrum Disorder. (3 cr. ; A-F only; Every Spring)
Selection/use of range of procedures, including non-biased, specific assessments to screen/ identify children with autism spectrum disorder. Specific intervention strategies designed to teach beginning communication/social skills to children with Autism Spectrum Disorder (ASD). prereq: 5661, Special Ed grad or licensure student or instr consent

EPSY 5681. Educating Preschoolers with Disabilities: Specialized Approaches and Interventions. (; 3 cr. ; A-F only; Every Spring)
This course provides an overview of specialized approaches and interventions available to maximize developmental and educational outcomes for young children, birth to age 6, with disabilities and their families in home, community, and school-based settings. Early educators and early childhood special educators (ECSE) play a major role in the development, implementation, and evaluation of individualized education and individualized family service plans. In addition, early educators and ECSE personnel are called upon to provide services that are interdisciplinary, multicultural, family-centered, inclusive, and developmentally appropriate. Thus, in order to be effective, early educators and ECSE professionals must be knowledgeable of and able to demonstrate curricular adaptations and instructional strategies that address the needs of young children with a broad range of disabilities in a broad range of preschool settings. prereq: [5616, 5625] or instr consent

EPSY 5682. Education of Infants and Toddlers with Disabilities: Specialized Approaches and Intervention. (; 1 cr. [max 2 cr.] ; A-F only; Every Spring)
This course provides an overview of specialized approaches and intervention systems available to maximize developmental and educational outcomes for infants and toddlers with developmental delays and disabilities. EPSY 5682 is a self-directed, online course that is divided into five modules. Students will learn about children? s development, components of the evaluation process to support determinations of eligibility for early intervention services, as well as how to design and provide early intervention services. As a result, students will be prepared to utilize approaches that are interdisciplinary, multicultural, family-centered, inclusive, and developmentally appropriate within the context of natural, authentic learning environments for infants and toddlers. prereq: [5616, 5625] or instr consent

EPSY 5699. Experimental Teaching Seminar. (2 cr. ; A-F only; Every Fall & Spring)
EPsy 5699 will be taken concurrently with the student teaching experience. Coursework will center around experimental teaching utilizing data-based instruction for affecting student growth academically. Students will demonstrate this understanding by planning and conducting a 3-to-5 lesson instructional sequence for a selected focus learner during their student teaching year. In addition, students will record their instruction and reflect on the effectiveness of their academic instruction. Prereq: instr consent

EPSY 5701. Practicum: Field Experience in General Education - Inclusive Classrooms. (; 1-2 cr. ; S-N only; Every Fall & Spring)
Field-Based Practicum. Observe and actively participate in an inclusive (with and without disabilities) general education classroom. An emphasis is placed on communication skills and reflective practice.

EPSY 5704. Practicum: Special Education Field Experience in Middle and Secondary School Classrooms. (; 1-2 cr. ; S-N only; Every Fall & Spring)
Pre-Student Teaching/Field-Based Practicum. Gain a better understanding of the role of special education teachers (in a variety of settings) and related service professionals. Apply knowledge from University courses in school settings - connecting theory, research, and practice.

EPSY 5705. Practicum: Special Ed Field Experience in Early Childhood SpEd (ECSE) & Elementary School Classrooms. (; 1-2 cr. ; S-N only; Every Fall & Spring)
Pre-Student Teaching/Field-Based Practicum. Gain a better understanding of the role of special education teachers (in a variety of settings) and related service professionals. Apply knowledge from University courses in school settings - connecting theory, research, and practice.

EPSY 5706. Practicum in Moderate to Severe Developmental Disabilities. (2 cr. ; S-N only; Every Fall & Spring)
Practicing principles required for successful inclusion. Address model for best practices/ requirements specified by Minnesota Board of Teaching.

EPSY 5707. Practicum in Moderate to Severe Learning Disabiliites. (3 cr. ; S-N only; Every Fall & Spring)
Moderate/severe learning disabilities. Transfer of theoretical knowledge to practical application. Role of LD teacher in variety of settings.

EPSY 5708. Practicum in Moderate to Severe Emotional/Behavioral Disorders. (2 cr. [max 3 cr.] ; S-N only; Every Fall & Spring)
Moderate/severe emotional behavior disorders. Transfer of theoretical knowledge to practical application. Role of EBD teacher in variety of settings.

EPSY 5720. Special Topics: Special Education. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Lab/fieldwork approach. Generating action plan. Creating set of observation field notes. Collecting data. Specific problems/possibilities related to special education.

EPSY 5741. Student Teaching: Academic and Behavioral Strategist. (3-6 cr. ; S-N only; Every Fall & Spring)
Transfer of theoretical knowledge to practical application. Responsibilities of special education teacher in variety of settings. prereq: Special education licensure program or instr consent

EPSY 5742. Student Teaching: Autism Spectrum Disorders. (; 6 cr. ; S-N only; Every Fall & Spring)
Transfer of theoretical knowledge to practical application. Role/responsibilities of special education teacher in settings of elementary/ secondary age.

EPSY 5751. Student Teaching for Deaf Education. (; 1-6 cr. [max 60 cr.] ; A-F only; Every Spring)
Students participate in educational programming for infants, children, and youth who are deaf or hard of hearing. On-site,

directed experiences under supervision of master teachers of deaf/hard of hearing students.

EPSY 5755. Student Teaching: Developmental Disabilities, Mild/Moderate. (; 1-6 cr. ; A-F or Audit; Every Fall & Spring)
Supervised student teaching, or special practicum project, in schools or other agencies serving students at elementary/ secondary levels who have mild to moderate developmental disabilities. prereq: Completion of all licensure coursework, instr consent

EPSY 5756. Student Teaching: Developmental Disabilities, Moderate/ Severe. (; 1-6 cr. ; A-F or Audit; Every Fall & Spring)
Supervised student teaching, or special practicum projects, in schools or other agencies serving students at elementary/ secondary levels who have moderate to severe developmental disabilities. prereq: Completion of all licensure coursework, instr consent

EPSY 5761. Student Teaching in Early Childhood Special Education Settings for Children Aged Three to Five Years. (; 3 cr. [max 6 cr.] ; S-N only; Every Fall & Spring)
Student teachers work closely with their cooperating teacher and University supervisor to design/implement programming for children in classrooms. Course includes a seminar with discussion, cooperative learning experiences, and some lectures. prereq: Licensure candidate in Early Childhood/Early Childhood Licensure Program, completion of all other licensure requirements for ECSE, instr consent; completion of Birth-3 student teaching should be completed after age 3-5 student teaching when possible

EPSY 5762. Student Teaching in Early Childhood Special Education for Children Aged Birth to Three Years. (; 3 cr. [max 6 cr.] ; S-N only; Every Fall & Spring)
Student teachers work closely with cooperating teacher and University supervisor to design/ implement programming for families with children aged birth-to-three in their homes. Course includes seminar with discussion, cooperative learning experiences, and some lectures. prereq: Licensure candidate in Early Childhood/Early Childhood Licensure Program, completion of all other licensure requirements for ECSE, instr consent; completion of Birth-3 student teaching should be completed after age 3-5 student teaching when possible

EPSY 5763. Practicum in Special Education: Behavior Intervention Planning and Implementation. (2 cr. ; S-N only; Every Fall)
This course will be delivered within a clinical model of instruction where the instructor serves as a coaching guide and the candidates participate in a community of practice with their peers. It is expected that given the instructor's coaching and the interactions within the community of practice, that the candidate will complete the portfolio associated with this course and, as part of that completion, demonstrate proficiency in all competencies associated with this course in order to earn a passing grade. As such, there is not a didactic instruction component or assigned readings for this clinical model of instruction-based course.

EPSY 5764. Practicum in Special Education: IEP Process. (2 cr. ; S-N only; Every Spring)
This course will be delivered within a clinical model of instruction where the instructor serves as a coaching guide and the candidates participate in a community of practice with their peers. It is expected that given the instructor's coaching and the interactions within the community of practice, that the candidate will complete the portfolio associated with this course and, as part of that completion, demonstrate proficiency in all competencies associated with this course in order to earn a passing grade. As such, there is not a didactic instruction component or assigned readings for this clinical model of instruction-based course.

EPSY 5765. Practicum in Special Education: Instructional Planning and Delivery. (2 cr. ; S-N only; Every Fall)
This course will be delivered within a clinical model of instruction where the instructor serves as a coaching guide and the candidates participate in a community of practice with their peers. It is expected that given the instructor's coaching and the interactions within the community of practice, that the candidate will complete the portfolio associated with this course and, as part of that completion, demonstrate proficiency in all competencies associated with this course in order to earn a passing grade. As such, there is not a didactic instruction component or assigned readings for this clinical model of instruction-based course.

EPSY 5802. History & Scientific Bases of Psychology. (3 cr. ; A-F only; Every Fall)
The course is designed to provide discipline-specific knowledge comprising the core of psychology. Accordingly, students will attain substantial knowledge in (1) history and systems of psychology, (2) affective, (3) biological, (4) cognitive, (5) developmental, and (6) social aspects of behavior.

EPSY 5849. Multi-tiered Systems of Support in Early Childhood Education. (; 3 cr. ; A-F only; Spring Even Year)
This course explores how multi-tiered systems of support (MTSS) are applied in early childhood settings. The course features content on early childhood assessment, intervention, data-based decision making, treatment integrity and information on how to apply MTSS models with unique early childhood populations. This course focuses on educational settings for children ages birth to 5 and is intended primarily for educational psychology students (or students from related disciplines) interested in basic and applied information regarding evidence-based service delivery for young children. The course will explore the three primary components of MTSS frameworks: assessment, intervention and data-based decision making including review of assessments and intervention techniques for infants and preschoolers in various developmental domains. Enrolled students will engage in a variety of instructional strategies to learn the noted content including large and small group discussion, lectures, active learning opportunities to practice and build capacity for specified interventions, technology-based interactions to support intervention, assessment and databased decision making and cooperative learning opportunities to engage content using dynamic methods.

EPSY 5851. Engaging Diverse Students and Families. (; 3 cr. ; Student Option; Every Fall & Spring)
Theoretical, practical, scientific issues involved in school psychological practice/training/ research. Theoretical/empirical bases for developing appropriate dispositions, practices, strategies. Illustrative lectures, discussions, group activities, case studies, presentations. prereq: Honors senior or grad student

EPSY 5853. Biological Bases of Behavior. (3 cr. ; A-F only; Periodic Fall)
Biological basis of behavior with emphasis on relationship between functions/structures of brain.

EPSY 5991. Independent Study in Educational Psychology. (; 1-8 cr. [max 20 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Self-directed study in areas not covered by regular courses. Specific program of study is jointly determined by student and advising faculty member. prereq: instr consent

Educational/Human Development (EDHD)

EDHD 1051. Editing for Writers. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Editing one's own writing. Linguistic features of standard written English. Styles/language utilized in academic writing. Small-group activities, individual/peer conferencing.

EDHD 1525V. First-Year Inquiry: Multidisciplinary Ways of Knowing. (WI; 4 cr. ; A-F only; Every Fall)
Writing intensive multidisciplinary approach to addressing the common question, "How can one person make a difference?" Students read a common book/work collaboratively to produce a final project. Active learning strategies to develop students' skills in critical reading, thinking, and writing. prereq: CEHD student, honors, 1st-term fr

EDHD 1525W. First-Year Inquiry: Multidisciplinary Ways of Knowing. (WI; 4 cr. ; A-F only; Every Fall)
Writing intensive multidisciplinary approach to addressing the common question, "How can one person make a difference?" Students read a common book/work collaboratively to produce a final project. Active learning strategies to develop students' skills in critical reading, thinking, and writing.

EDHD 1620. Current Topics: Strategies for Student Success. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
For topics see Class Schedule.

EDHD 1701. Identity, Culture, and College Success. (; 1 cr. ; A-F only; Every Fall)

How culture/identity play role in educational experience. Self-authorship skills to create educational/personal path that aligns with values/beliefs. Lecture, discussion, readings, activities. prereq: TRIO or PES student

EDHD 1904. Globalizing your Undergraduate Curriculum. (GP,IP; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
EDHD 1904 is designed to engage domestic and international students in the multiple ways of thinking and doing for the expressed purpose of infusing a global perspective in their undergraduate education. Students will virtually engage with undergraduate students in Russia and China exploring what it means to be a student and adult participant on the world stage. Student will have exposure and experiences with international students, international student organizations, service learning, Collaborative Online International Learning (COIL), Massive Open Online Courses (MOOCs), Internationalization at Home (IaH), Study Abroad, and other international-based research, learning, or extracurricular processes and opportunities. This course will prepare students to embrace intercultural competency and its impact on self-awareness, social settings, course work, research projects, and career choices.

EDHD 2201H. Basics of Research Methods for Honors Students. (; 2 cr. ; Student Option; Every Spring)
As part of a society that is saturated with "research," we have all at some point encountered at least one form of research--whether it is via election polls, market surveys, investigative findings reported on the 10pm news, or academic research for your papers. There is sometimes too much research to make sense of it all. As an undergraduate student, you have likely found many examples of research, and it will only become more important in your own academic career, and if you choose to pursue an academic route, in your own development as a scholar. Therefore, learning the basics of research--how it is conducted, how it can be used to answer everyday questions, and what makes it good quality--will make you not only a better researcher, but also a better consumer of academic and popular research. This course aims to introduce you, as an honors student, to these topics.

EDHD 2701. Your Future: Identity, Culture & Career Success. (2 cr. ; Student Option No Audit; Every Spring)
One of the biggest challenges for any college student is choosing a major and career! Making decisions about your major and future career can be overwhelming, confusing, and intimidating. Students often wonder, "What is the right major/career for me? How do I know my options? What steps do I need to take to reach my career goals? Who can I go to for help?" In this course you'll develop a clearer sense of self and create greater awareness of your multiple identities and how they influence your career decision-making and future success. You'll also learn the importance of social and cultural capital and how to build the capital needed to move forward in your career journey. Through community building, storytelling, reflection, readings, lecture, discussion, in-class activities and projects, you'll be empowered to define career success through your own lived experiences and cultural lenses, gain confidence in your career decision-making abilities, and author your own career journey.

EDHD 3100. International Topics for Undergraduates. (; 1-12 cr. ; Student Option; Every Fall, Spring & Summer)
Off-campus course. Topics from research exploration to academic/engagement activities. Delivered in international setting. Course requirements are determined by instructor(s) and reflect advanced undergraduate rigor. prereq: instr consent

EDHD 3161. Great Minds of the Renaissance. (GP,HIS; 4 cr. ; A-F only; Every Spring)
The Great Minds of the Renaissance course focuses on the development of scientific thought and the great minds behind those ideas; it delves into the intersection of scientific ideas with art, culture, religion, politics, etc. In doing so, it also covers a wide range of general or liberal education objectives.

EDHD 3300. Special Topics in Education and Human Development. (; 1-6 cr. [max 12 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Special topics in education/human development.

EDHD 5100. International Topics for Graduate Students. (; 1-12 cr. ; Student Option; Every Fall, Spring & Summer)
Off-campus course. Topics from research exploration to academic/engagement activities. Delivered in international setting.Course requirements are determined by instructor(s) and reflect graduate-level rigor.

EDHD 5200. Special Topics: Professional Development for Educators. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Summer)
Special topics course that permits offering a variety of research-based and scholarly content to meet the needs of educators from P-12 settings.

EDHD 5300. Special Topics: Ed & Human Dev. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Special topics in education and human development.

Electrical & Computer Eng (EE)

EE 1001. Introduction to Electrical and Computer Engineering. (; 1 cr. ; S-N or Audit; Every Spring)
Introduction to engineering/computer engineering. Techniques and technologies developed by electrical and computer engineers.

EE 1301. Introduction to Computing Systems. (; 4 cr. ; Student Option; Every Fall & Spring)
C/C++ programming constructs, binary arithmetic and bit manipulation, data representation and abstraction, data types/structures, arrays, pointer addressing, control flow, iteration, recursion, file I/O, basics of object-oriented programming. An Internet-of-Things lab is integral to the course.

EE 1701. Climate Crisis: Implementing Solutions. (TS; 3 cr. ; Student Option; Every Fall & Summer)
Energy from renewables such as solar and wind to combat potentially catastrophic climate change resulting from our use of fossil fuels; electrifying our transportation; ways to increase energy efficiency and energy conservation; need for energy storage to increase the penetration of renewables; role of technology, societal benefits and the ethics. Note: EE 1701 and EE 1703 (the lab) need to both be taken to fulfill the Physical Science Core requirement. EE 1701 alone fulfills the Technology and Society theme requirement.

EE 1703. Laboratory for Climate Crisis: Implementing Solutions. (PHYS; 1 cr. ; Student Option; Every Fall & Spring)
Laboratory to complement and accompany EE 1701. Experiments to include among: 1) Demonstration of Global Warming by CO2, 2) characteristics of Light for Power Generation through PVs, Lighting through LEDs, and Growing Plants in Greenhouses, 3) Energy Generation Using PV Panels and the Maximum Power Point, 4) PV Panels in Series and Parallel combinations, 5) Wind Turbine Characteristics and the Maximum Coefficient of Performance, 6) Wind Turbine Characteristics for varying wind speeds and Pitch Control of Blades, 7) Battery Characteristics, 8) AC Electric Systems: Real and Reactive Power, 1-Phase, 9) Three-Phase Systems, Motors and Generators, 10) LEDs compared to Incandescent Lamps and CFLs, 11) Growing Plants using LEDs and batteries in Greenhouses, 12) Air Conditioning and Heat Pumps, 13) Simulation of various energy resources to meet the load demand on the electric grid, 14) Economic Calculations of using an Electric Vehicle and Participating in Community SolarGardens. EE 1701 and EE 1703 (the lab) need to both be taken to fulfill the Physical Science Core requirement. EE 1701 alone fulfills the Technology and Society theme requirement. prereq: EE 1701 or concurrent registration is required (or allowed) in EE 1701

EE 2015. Signals, Circuits and Electronics. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to analog electrical systems with particular emphasis on audio circuits and signals. Time and frequency domain representations. Kirchhoff?s laws. Power. Inductance and Capacitance. Introduction to op-amp circuits and their audio applications. Complex numbers and phasors. Introduction to Fourier Series. RLC circuits and basic filter networks. Laboratory experiments on audio amplifiers, distortion, intermodulation products, low-level differential amplifiers, bass/treble filters. prereq: concurrent registration is

required (or allowed) in PHYS 1302, concurrent registration is required (or allowed) in (MATH 2243 or MATH 2373 or MATH 2573)

EE 2115. Analog and Digital Electronics. (4 cr. ; Student Option; Every Fall, Spring & Summer)
An introduction to electronic circuits with emphasis on switching speed and analog mixed signal models. Transient analysis of RC, RL and RLC circuits. Gate delays and limitations on CMOS digital circuit switching. Transient response of lumped 1st and 2nd order ladder networks. Laplace transform and applications. Introduction to analog filters. Elementary sampled data filters. A/D and D/A circuit technologies. Laboratory experiments on AM modulation and superheterodyne receivers with focus on electronic implementation. prereq: 2015

EE 2301. Introduction to Digital System Design. (; 4 cr. ; Student Option; Every Fall & Spring)
Boolean algebra, logic gates, combinational logic, logic simplification, sequential logic, design of synchronous sequential logic, Verilog modeling, design of logic circuits. Integral lab. Prereq: [EE 1301 (preferred) or CSCI 1113 or CSCI 1103 or CSci 1133]

EE 2361. Introduction to Microcontrollers. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Basic computer organization, opcodes, assembly language programming, logical operations and bit manipulation in C, stack structure, timers, parallel/serial input/ output, buffers, input pulse-width and period measurements, PWM output, interrupts and multi-tasking, using special-purpose features such as A/D converters. Integral lab. Prereq: [EE 1301 (preferred) or CSCI 1113 or CSCI 1103 or CSci 1133]

EE 2701. Sustainable Electricity Supply: Renewables and Conservation. (TS; 3 cr. ; Student Option; Every Spring)
This course is on the very timely topic of combating climate change by looking closely at electricity generation, delivery, and its use for a sustainable future. Generating electricity from renewables and conservation in all forms, including improving energy efficiency, are the most important tools we have for combatting climate change. This course will help you understand the historical development of energy production, the economic impacts of energy sources, the political implications, and a technical understanding of solar power, wind power, electrical vehicles, fuel cells, energy distribution, and conservation. It will help you consider the potential societal benefits such as reduced energy bills, cleaner air and water, increased economic opportunities, and prepare you for exciting and meaningful careers in renewable energy and sustainability.

EE 2703. Sustainable Electricity Supply: Renewables and Conservation Lab. (; 1 cr. ; Student Option; Every Spring)
This online lab is to complement what students are learning in the associated three-credit course EE2701. Students will conduct experiments related to Wind Turbines, Electronic Converters, Photovoltaics, LEDs, and the Smart Grid. Since all the experiments are digitally controlled, they can easily be performed online. Co-requisite: EE2701

EE 3005. Fundamentals of Electrical Engineering. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Fundamentals of analog electronics, digital electronics, and power systems. Circuit analysis, electronic devices and applications, digital circuits, microprocessor systems, operational amplifiers, transistor amplifiers, frequency response, magnetically coupled circuits, transformers, steady state power analysis. prereq: Math 2243, Phys 1302; not for EE majors

EE 3006. Fundamentals of Electrical Engineering Laboratory. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Lab to accompany 3005. prereq: Concurrent enrollment in 3005 is allowed but not required

EE 3015. Signals and Systems. (; 3 cr. ; Student Option; Every Fall & Spring)
Basic techniques for analysis/design of signal processing, communications, and control systems. Time/frequency models, Fourier-domain representations, modulation. Discrete-time/digital signal/system analysis. Z transform. State models, stability, feedback. Suggest taking EE 3101 concurrently. prereq: [2115, CSE Upper Division] or dept consent

EE 3025. Statistical Methods in Electrical and Computer Engineering. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Notions of probability. Elementary statistical data analysis. Random variables, densities, expectation, correlation. Random processes, linear system response to random waveforms. Spectral analysis. Computer experiments for analysis and design in random environment. prereq: [3015, CSE upper division] or instr approval

EE 3041. Industrial Assignment I. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering co-op program. Evaluation based on student's formal written report covering semester's work assignment. prereq: [EE or CompE upper div], enrolled in ECE co-op program

EE 3101. Signals, Circuits and Electronics Laboratory. (; 1 cr. ; A-F only; Every Fall & Spring)
Experiments in electronic systems for information processing; modulation, demodulation, and filtering using analog and digital electronics; sampling, quantization and digital filtering; feedback and phase lock loops. prereq: [2115, &3015, &3115, CSE Upper Division] or dept consent

EE 3102. Circuits and Electronics Laboratory II. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Experiments in circuits/electronics. Team design project. prereq: [3101 or CSE or dept consent], attendance first day of class.

EE 3115. Analog Electronics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Basic differential amplifiers using FETs and BJTs. Current sources for differential amplifiers. Op- amp-based differential amplifiers. IC op amps as multi-stage amplifiers. Ideal (dc) feedback. Stability and compensation of negative feedback amplifiers. Sinusoidal oscillators. Waveshaping circuits. Power amplifiers. Use of circuit simulators. EE 3015 and EE 3101 should be taken before or concurrently with EE 3115. prereq: [EE 2115, &EE 3015, CSE upper division] or dept consent

EE 3161. Semiconductor Devices. (; 3 cr. ; Student Option; Every Fall & Spring)
Elementary semiconductor physics; physical description of pn junction diodes, bipolar junction transistors, field-effect transistors. prereq: Upper div CSE, 2115, Phys 1302, Phys 2303 or Chem 1022

EE 3601. Transmission Lines, Fields, and Waves. (; 3 cr. ; Student Option; Every Fall & Spring)
Properties of transmission lines, electrostatics, magnetostatics, and electromagnetic waves in unbounded space. Guides, cavities, radiation theory, antennas. prereq: [2015, [Math 2374 or Math 2263 or Math 2574H or Math 3584H], [Phys 1302 or Phys 1402], CSE] or dept consen

EE 3940. Special Topics in Electrical and Computer Engineering. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Summer)
Topics that are not available in regular courses. Topics vary. prereq: instr consent

EE 3990. Curricular Practical Training. (1-2 cr. [max 12 cr.] ; S-N only; Every Fall, Spring & Summer)
Industrial work assignment involving advanced electrical engineering technology. Reviewed by faculty member. Final report covering work assignment prereq: instr consent, undergrad EE or CompE major

EE 4043W. Industrial Assignment II. (WI; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Solution of system design problems that require developing criteria, evaluating alternatives, and generating a preliminary design. Final report emphasizes design communication and describes design decision process, analysis, and final recommendations. prereq: 3041

EE 4044. Industrial Assignment III. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering co-op program. Evaluation based on student's formal written report covering semester work assignment. prereq: 4043W

EE 4111. Advanced Analog Electronics Design. (; 4 cr. ; Student Option; Every Spring)
Basic integrated circuit building blocks of differential amplifiers, high bandwidth, instrumentation amplifiers. Current/voltage references. Feedback, stability, and noise in electronic circuits. Integral lab. prereq: 3015, 3115

EE 4161W. Energy Conversion and Storage. (WI; 3 cr. ; Student Option; Every Spring)

Fundamental physics/chemistry of selected energy conversion and energy storage devices. Connections with their electric power applications. Role of grid, application to electric vehicles. Lectures, lab, student presentations. prereq: 3161 or instr consent

EE 4163. Energy Conversion and Storage Laboratory. (; 1 cr. ; Student Option; Every Spring)
Provides laboratory experiences with the topics of 4161W, including the fundamental physics and chemistry of selected energy conversion and energy storage devices, their application, and their connection strategies in electric power applications. prereq: concurrent registration is required (or allowed) in 4161W

EE 4231. Linear Control Systems: Designed by Input/Output Methods. (3 cr. ; Student Option; Every Fall)
Modeling, characteristics, performance of feedback control systems. Stability, root locus, frequency response methods. Digital implementation, hardware considerations. prereq: [3015, [upper div CSE or grad student in CSE major]] or instr consent

EE 4233. State Space Control System Design. (; 3 cr. ; Student Option; Every Spring)
State space models, performance evaluation, numerical issues for feedback control. Stability, state estimation, quadratic performance. Implementation, computational issues. prereq: [3015, upper div CSE] or instr consent

EE 4235. Linear Control Systems Laboratory. (; 1 cr. ; Student Option; Every Fall)
Lab to accompany 4231. prereq: 4231 or concurrent registration is required (or allowed) in 4231

EE 4237. State Space Control Laboratory. (; 1 cr. ; Student Option; Every Spring)
Lab to accompany 4233. prereq: 4233 or concurrent registration is required (or allowed) in 4233; no cr for [EE or CompE] grad students

EE 4301. Digital Design With Programmable Logic. (; 4 cr. ; Student Option; Every Fall & Summer)
Introduction to system design/simulation. Design using Verilog code/synthesis. Emulation using Verilog code. prereq: 2301, [1301 or CSCI 1113 or CSCI 1901]

EE 4303. Introduction to Programmable Devices Laboratory. (; 1 cr. ; Student Option; Periodic Spring)
Verilog Language. Combinatorial and sequential logic synthesis with Verilog. Implementation in Field Programmable Gate Arrays (FPGAs). prereq: 2301, 2361; cannot receive cr for 4303 if cr granted for EE 4301

EE 4341. Embedded System Design. (; 4 cr. ; Student Option; Every Spring)
Microcontroller interfacing for embedded system design. Exception handling/interrupts. Memory Interfacing. Parallel/serial input/output methods. System Buses and protocols. Serial Buses and component interfaces. Microcontroller Networks. Real-Time Operating Systems. Integral lab. prereq: 2301, 2361, upper div CSE

EE 4363. Computer Architecture and Machine Organization. (; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to computer architecture. Aspects of computer systems, such as pipelining, memory hierarchy, and input/output systems. Performance metrics. Examines each component of a complicated computer system. prereq: 2361

EE 4389W. Introduction to Predictive Learning. (WI; 3 cr. ; Student Option; Fall Odd Year)
Empirical inference and statistical learning. Classical statistical framework, model complexity control, Vapnik-Chervonenkis (VC) theoretical framework, philosophical perspective. Nonlinear methods. New types of inference. Application studies. prereq: [3025, ECE student] or STAT 3022; computer programming or MATLAB or similar environment is recommended for ECE students

EE 4501. Communications Systems. (; 3 cr. ; Student Option; Every Fall)
Systems for transmission/reception of digital/analog information. Characteristics/design of wired/wireless communication systems. Baseband, digital, and carrier-based techniques. Modulation. Coding. Electronic noise and its effects on design/performance. prereq: 3025

EE 4505. Communications Systems Laboratory. (; 1 cr. ; Student Option; Every Fall)
Experiments in analysis/design of wired/wireless communication systems. Lab to accompany 4501. prereq: 4501 or concurrent registration is required (or allowed) in 4501

EE 4541. Digital Signal Processing. (; 3 cr. ; Student Option; Every Fall & Summer)
Review of linear discrete time systems and sampled/digital signals. Fourier analysis, discrete/fast Fourier transforms. Interpolation/decimation. Design of analog, infinite-impulse response, and finite impulse response filters. Quantization effects. prereq: [3015, 3025] or instr consent prereq: [3015, 3025] or instr consent

EE 4607. Wireless Hardware System Design. (; 3 cr. ; Student Option; Every Spring)
Random processes, noise, modulation, error probabilities. Antenna opertaion, power transfer between antennas, rf propagation phenomena, transmitters/receivers, transmission lines, effect of antenna performance on system performance, rf/microwave device technologies, small-signal amplifiers, mixers, power amplifiers, rf oscillators. prereq: [3015, 3115, 3601, CSE student] or dept consent

EE 4616. Antennas: Theory, Analysis, and Design. (3 cr. ; Student Option; Every Fall)
With the widespread use of cell phones autonomous vehicles, and the coming of the Internet of Things, there is an increasing need to understand wireless communications and radar sensors. A key component of these systems is the antenna. The purpose of this course is to help the student develop knowledge in the area of antennas. This involves understanding the parameters that are used to characterize antennas and how these effect system performance. An important aspect of the course is to provide the student with an understanding of the operating principles behind the most commonly used antennas. This is followed with exposure to basic design principles. These can be used to perform antenna design or can be used as starting points for design using an electromagnetic simulator. As part of the course, students will be exposed to simulator use through homework assignments and course project work. [EE 3601 or equivalent]

EE 4623. Introduction to Modern Optics. (3 cr. ; Student Option; Every Fall)
Modern optics broadly defined as geometrical, physical, and quantum optics, including interference and diffraction, optical polarization, Fourier optics, cavity optics, optical propagation, optical coherence, lasers, optical detection, and optical instruments. prereq: [Phys 2503 or Phys 2303] and [Math 2374 or MATH 2263 or MATH 2573H]; instr consent.

EE 4701. Electric Drives. (; 3 cr. ; Student Option; Every Spring)
AC/DC electric-machine drives for speed/position control. Integrated discussion of electric machines, power electronics, and control systems. Computer simulations. Applications in electric transportation, robotics, process control, and energy conservation. prereq: 3015

EE 4703. Electric Drives Laboratory. (; 1 cr. ; Student Option; Every Spring)
Laboratory to accompany 4701. Simulink-based simulations of electric machines/drives in applications such as energy conservation and motion control in robotics. prereq: 4701 or concurrent registration is required (or allowed) in 4701

EE 4721. Introduction to Power System Analysis. (; 3 cr. ; Student Option; Every Fall)
AC power systems. Large power system networks. Mathematics/techniques of power flow analysis. Short-circuit analysis, transient stability analysis. Use of power system simulation program for design. prereq: 2011

EE 4722. Power System Analysis Laboratory. (; 1 cr. ; Student Option; Every Fall)
Lab analysis of AC power systems, power system networks, power flow, short circuit, transient stability. prereq: 4721 or concurrent registration is required (or allowed) in 4721

EE 4741. Power Electronics. (; 3 cr. [max 4 cr.] ; Student Option; Every Fall)
Switch-mode power electronics. Switch-mode DC power supplies. Switch-mode converters for DC and AC motor drives, wind/photovoltaic inverters, interfacing power electronics equipment with utility system. Power semiconductor devices, magnetic design, electro-magnetic interference (EMI). prereq: 3015, 3115

EE 4743. Switch-Mode Power Electronics Laboratory. (; 1 cr. ; Student Option; Every Fall)

Laboratory to accompany 4741. PSpice-/Simulink-based simulations of converters, topologies, and control in switch-mode dc power supplies, motor drives for motion control, and inverters for interfacing renewable energy sources to utility grid. prereq: 4741 or concurrent registration is required (or allowed) in 4741

EE 4893. Directed Study. (1-3 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Studies of approved projects, either theoretical or experimental. prereq: dept consent

EE 4894. Honors Directed Research I. (2 cr. ; Student Option; Every Fall, Spring & Summer)
Experience in research/design for electrical/computer engineering. Oral/written reports. This courses is part 1 of a two-part course that spans one year of research/design for electrical or computer engineering students. Students must apply and qualify for the course and obtain a faculty sponsor. Prereq: Departmental Consent

EE 4930. Special Topics in Electrical and Computer Engineering Laboratory. (; 1-2 cr. [max 6 cr.] ; A-F only; Periodic Fall, Spring & Summer)
Lab work not available in regular courses. Topics vary. prereq: CSE sr or grad student or instr consent

EE 4940. Special Topics in Electrical and Computer Engineering. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics that are not available in regular courses. Topics vary. prereq: CSE or instr consent

EE 4951W. Senior Design Project. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Team participation in formulating/solving open-ended design problems. Oral/written presentations. prereq: 3015, 3115, 3102, attendance first day of class

EE 4981H. Senior Honors Project I. (; 2 cr. ; Student Option; Every Fall)
Experience in research/design for electrical/computer engineering. Oral/written reports. prereq: ECE honors, sr, instr consent

EE 4982V. Senior Honors Project II. (WI; 2 cr. ; Student Option; Every Spring)
Experience in research/design for electrical/computer engineering. Oral/written reports. prereq: 4981

EE 4994. Honors Directed Research II. (2 cr. ; Student Option; Every Fall, Spring & Summer)
Experience in research/design for electrical/computer engineering. Oral/written reports. This courses is part 2 of a two-part course that spans one year of research/design for electrical or computer engineering students. Students must apply and qualify for the course and obtain a faculty sponsor.

EE 4999. Special Exam. (; 2 cr. ; Student Option;)

EE 5041. Industrial Assignment for Graduate Students. (1 cr. ; S-N only; Every Fall, Spring & Summer)
Optional industrial work assignment. Evaluation based on student's formal written report covering semester's work assignment. This course counts for 6 credits of Academic Progress for the semester in which it is taken. prereq: Consent of Advisor and Office of the DGS

EE 5121. Transistor Device Modeling for Circuit Simulation. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Basics of MOS, bipolar theory. Evolution of popular device models from early SPICE models to current industry standards. prereq: [3115, 3161, CSE grad student] or dept consent

EE 5141. Introduction to Microsystem Technology. (; 4 cr. ; Student Option; Every Spring)
Microelectromechanical systems composed of microsensors, microactuators, and electronics integrated onto common substrate. Design, fabrication, and operation principles. Labs on micromachining, photolithography, etching, thin film deposition, metallization, packaging, and device characterization. prereq: [3161, 3601, CSE grad student] or dept consent

EE 5163. Semiconductor Properties and Devices I. (; 3 cr. ; Student Option; Every Fall)
Principles/properties of semiconductor devices. Selected topics in semiconductor materials, statistics, and transport. Aspects of transport in p-n junctions, heterojunctions. prereq: [3161, 3601, CSE grad student] or dept consent

EE 5164. Semiconductor Properties and Devices II. (; 3 cr. ; Student Option; Every Spring)
Principles/properties of semiconductor devices. Charge control in different FETs, transport, modeling. Bipolar transistor models (Ebers-Moll, Gummel-Poon), heterostructure bipolar transistors. Special devices. prereq: 5163 or instr consent

EE 5171. Microelectronic Fabrication. (; 4 cr. ; Student Option; Every Fall)
Fabrication of microelectronic devices. Silicon integrated circuits, GaAs devices. Lithography, oxidation, diffusion. Process integration of various technologies, including CMOS, double poly bipolar, and GaAs MESFET. prereq: CSE grad student or dept consent

EE 5173. Basic Microelectronics Laboratory. (; 1 cr. ; Student Option; Every Fall)
Students fabricate a polysilicon gate, single-layer metal, NMOS chip, performing 80 percent of processing, including photolithography, diffusion, oxidation, and etching. In-process measurement results are compared with final electrical test results. Simple circuits are used to estimate technology performance. prereq: [[5171 or concurrent registration is required (or allowed) in 5171], CSE grad student] or dept consent

EE 5181. Micro and Nanotechnology by Self Assembly. (; 3 cr. ; Student Option; Spring Odd Year)
Self-assembly process of micro and nano structures for realization of 1-, 2-, 3-dimensional micro- and nano-devices. Micro and nanoscale fabrication by electrostatic, magnetic, surface tension, Capillary, intrinsic and extrinsic forces. Nanoscale lithographic patterning. Devices packaging, Self-healing process. prereq: EE 3161, Phys 1302

EE 5231. Linear Systems and Optimal Control. (; 3 cr. ; Student Option; Every Fall)
Properties and modeling of linear systems. Linear quadratic and linear-quadratic-Gaussian regulators. Maximum principle. prereq: [3015, CSE grad student] or instr consent

EE 5235. Robust Control System Design. (; 3 cr. ; Student Option; Every Spring)
Development of control system design ideas; frequency response techniques in design of single-input/single-output (and MI/MO) systems. Robust control concepts. CAD tools. prereq: CSE grad, 3015, 5231 or instr consent

EE 5239. Introduction to Nonlinear Optimization. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Nonlinear optimization. Analytical/computational methods. Constrained optimization methods. Convex analysis, Lagrangian relaxation, non-differentiable optimization, applications in integer programming. Optimality conditions, Lagrange multiplier theory, duality theory. Control, communications, management science applications. prereq: [3025, Math 2373, Math 2374, CSE grad student] or dept consent

EE 5251. Optimal Filtering and Estimation. (; 3 cr. ; Student Option; Every Fall)
Basic probability theory, stochastic processes. Gauss-Markov model. Batch/recursive least squares estimation. Filtering of linear/nonlinear systems. Continuous-time Kalman-Bucy filter. Unscented Kalman filter, particle filters. Applications. prereq: [[[MATH 2243, STAT 3021] or equiv], CSE grad student] or dept consent; 3025, 4231 recommended

EE 5271. Robot Vision. (3 cr. ; Student Option; Every Fall)
Modern visual perception for robotics that includes position and orientation, camera model and calibration, feature detection, multiple images, pose estimation, vision-based control, convolutional neural networks, reinforcement learning, deep Q-network, and visuomotor policy learning. [Math 2373 or equivalent; EE 1301 or equivalent basic programming course]

EE 5301. VLSI Design Automation I. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Basic graph/numerical algorithms. Algorithms for logic/high-level synthesis. Simulation algorithms at logic/circuit level. Physical-design algorithms. prereq: [2301, CSE grad student] or dept consent

EE 5302. VLSI Design Automation II. (; 3 cr. ; Student Option; Every Spring)
Basic algorithms, computational complexity. High-level synthesis. Test generation. Power estimation. Timing optimization. Current topics. prereq: [5301, CSE grad student] or dept consent

EE 5323. VLSI Design I. (; 3 cr. ; Student Option; Every Fall)

Combinational static CMOS circuits. Transmission gate networks. Clocking strategies, sequential circuits. CMOS process flows, design rules, structured layout techniques. Dynamic circuits, including Domino CMOS and DCVS. Performance analysis, design optimization, device sizing. prereq: [2301, 3115, CSE grad student] or dept consent

EE 5324. VLSI Design II. (; 3 cr. ; Student Option; Every Spring)
CMOS arithmetic logic units, high-speed carry chains, fast CMOS multipliers. High-speed performance parallel shifters. CMOS memory cells, array structures, read/write circuits. Design for testability, including scan design and built-in self test. VLSI case studies. prereq: [5323, CSE grad student] or dept consent

EE 5327. VLSI Design Laboratory. (; 3 cr. ; Student Option; Every Spring)
Complete design of an integrated circuit. Designs evaluated by computer simulation. prereq: [4301, [5323 or concurrent registration is required (or allowed) in 5323], CSE grad student] or dept consent

EE 5329. VLSI Digital Signal Processing Systems. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Programmable architectures for signal/media processing. Data-flow representation. Architecture transformations. Low-power design. Architectures for two's complement/redundant representation, carry-save, and canonic signed digit. Scheduling/allocation for high-level synthesis. prereq: [[5323 or concurrent registration is required (or allowed) in 5323], CSE grad student] or dept consent

EE 5333. Analog Integrated Circuit Design. (; 3 cr. ; Student Option; Every Fall)
Fundamental circuits for analog signal processing. Design issues associated with MOS/BJT devices. Design/testing of circuits. Selected topics (e.g., modeling of basic IC components, design of operational amplifier or comparator or analog sampled-data circuit filter). prereq: [3115, CSE grad student] or dept consent

EE 5340. Introduction to Quantum Computing and Physical Basics of Computing. (3 cr. ; Student Option; Every Spring)
Physics of computation will explore how physical principles and limits have been shaping paradigms of computing. A key goal of this course is to understand how (and to what extent) a paradigm shift in computing can help with emerging energy problems. Topics include physical limits of computing, coding and information theoretical foundations, computing with beyond-CMOS devices, reversible computing, quantum computing, stochastic computing. A previous course in computer architecture is suggested but not required.

EE 5351. Applied Parallel Programming. (3 cr. ; Student Option; Every Fall)
Parallel programming/architecture. Application development for many-core processors. Computational thinking, types of parallelism, programming models, mapping computations effectively to parallel hardware, efficient data structures, paradigms for efficient parallel algorithms, application case studies. prereq: [4363 or equivalent], programming experience (C/C++ preferred)

EE 5355. Algorithmic Techniques for Scalable Many-core Computing. (3 cr. ; Student Option; Spring Odd Year)
Algorithm techniques for enhancing the scalability of parallel software: scatter-to-gather, problem decomposition, binning, privatization, tiling, regularization, compaction, double-buffering, and data layout. These techniques address the most challenging problems in building scalable parallel software: limited parallelism, data contention, insufficient memory bandwidth, load balance, and communication latency. Programming assignments will be given to reinforce the understanding of the techniques. prereq: basic knowledge of CUDA, experience working in a Unix environment, and experience developing and running scientific codes written in C or C ++. Completion of EE 5351 is not required but highly recommended.

EE 5364. Advanced Computer Architecture. (; 3 cr. ; Student Option; Every Fall)
Instruction set architecture, processor microarchitecture. Memory and I/O systems. Interactions between computer software and hardware. Methodologies of computer design. prereq: [[4363 or CSci 4203], CSE grad student] or dept consent

EE 5371. Computer Systems Performance Measurement and Evaluation. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Tools/techniques for analyzing computer hardware, software, system performance. Benchmark programs, measurement tools, performance metrics. Deterministic/probabilistic simulation techniques, random number generation/testing. Bottleneck analysis. prereq: [4363 or 5361 or CSci 4203 or 5201], [CSE grad student] or dept consent

EE 5373. Data Modeling Using R. (1 cr. ; A-F only; Periodic Fall & Spring)
Introduction to data modeling and the R language programming. Multi-factor linear regression modeling. Residual analysis and model quality evaluation. Response prediction. Training and testing. Integral lab. An introductory course in probability and statistics is suggested but not required; basic programming skills in some high-level programming language, such as C/C++, Java, Fortran, etc also suggested.

EE 5381. Telecommunications Networks. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Fundamental concepts of modern telecommunications networks, mathematical tools required for their performance analysis. Layered network architecture, point-to-point protocols/links, delay models, multiaccess communication/routing. prereq: [4501, 5531, CSE grad student] or dept consent

EE 5389. Introduction to Predictive Learning. (3 cr. ; Student Option; Fall Even Year)
Empirical inference and statistical learning. Classical statistical framework, model complexity control, Vapnik-Chervonenkis (VC) theoretical framework, philosophical perspective. Nonlinear methods. New types of inference. Application studies. prereq: EE 3025, STAT 3022 or equivalent; computer programming or MATLAB or similar environment is recommended.

EE 5391. Computing With Neural Networks. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Neural networks as a computational model. Connections to AI, statistics and model-based computation. Associative memory and matrix computation; Hopfield networks. Supervised networks for classification and prediction. Unsupervised networks for data reduction. Associative recognition/retrieval, optimization, time series prediction, knowledge extraction. prereq: [[3025 or Stat 3091], CSE grad student] or dept consent

EE 5393. Circuits, Computation, and Biology. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Connections between digital circuit design and synthetic/computational biology. Probabilistic, discrete-event simulation. Timing analysis. Information-Theoretic Analysis. Feedback in digital circuits/genetic regulatory systems. Synthesizing stochastic logic and probabilistic biochemistry.

EE 5501. Digital Communication. (; 3 cr. ; Student Option; Every Fall)
Theory/techniques of modern digital communications. Communication limits. Modulation/detection. Data transmission over channels with intersymbol interference. Optimal/suboptimal sequence detection. Equalization. Error correction coding. Trellis-coded modulation. Multiple access. prereq: [3025, 4501, CSE grad student] or dept consent

EE 5505. Wireless Communication. (; 3 cr. ; Student Option; Every Spring)
Introduction to wireless communication systems. Propagation modeling, digital communication over fading channels, diversity and spread spectrum techniques, radio mobile cellular systems design, performance evaluation. Current European, North American, and Japanese wireless networks. prereq: [4501, CSE grad student] or dept consent; 5501 recommended

EE 5531. Probability and Stochastic Processes. (; 3 cr. ; Student Option; Every Fall)
Probability, random variables and random processes. System response to random inputs. Gaussian, Markov and other processes for modeling and engineering applications. Correlation and spectral analysis. Estimation principles. Examples from digital communications and computer networks. prereq: [3025, CSE grad student] or dept consent

EE 5542. Adaptive Digital Signal Processing. (; 3 cr. ; Student Option; Periodic Fall & Spring)

Design, application, and implementation of optimum/adaptive discrete-time FIR/IIR filters. Wiener, Kalman, and Least-Squares. Linear prediction. Lattice structure. LMS, RLS, and Levinson-Durbin algorithms. Channel equalization, system identification, biomedical/sensor array processing, spectrum estimation. Noise cancellation applications. prereq: [4541, 5531, CSE grad student] or dept consent

EE 5545. Digital Signal Processing Design. (; 3 cr. ; Student Option; Every Spring)
Real-time implementation of digital signal processing (DSP) algorithms, including filtering, sample-rate conversion, and FFT-based spectral analysis. Implementation on a modern DSP Platform. Processor architecture. Arithmetic operations. Real-time processing issues. Processor limitations. Integral laboratory. prereq: [4541, CSE grad student] or dept consent

EE 5549. Digital Signal Processing Structures for VLSI. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Pipelining. Parallel processing. Fast convolution. FIR, rank-order, IIR, lattice, adaptive digital filters. Scaling and roundoff noise. DCT. Viterbi coders. Lossless coders, video compression. prereq: [4541, CSE grad student] or dept consent

EE 5551. Multiscale and Multirate Signal Processing. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Multirate discrete-time systems. Bases, frames. Continuous wavelet transform. Scaling equations. Discrete wavelet transform. Applications in signal/image processing. prereq: [4541, 5531, CSE grad student] or dept consent

EE 5561. Image Processing and Applications. (; 3 cr. ; Student Option; Every Spring)
Two-dimensional digital filtering/transforms. Application to image enhancement, restoration, compression, and segmentation. prereq: [4541, 5581, CSE grad student] or instr consent

EE 5581. Information Theory and Coding. (; 3 cr. ; Student Option; Fall Even Year)
Source/channel models, codes for sources/channels. Entropy, mutual information, capacity, rate-distortion functions. Coding theorems. prereq: [5531, CSE grad student] or dept consent

EE 5583. Error Control Coding. (; 3 cr. ; Student Option; Periodic Spring)
Error-correcting codes. Concepts, properties, polynomial representation. BCH, Golay, Reed-Muller/Reed-Solomon codes. Convolutional codes. Iterative codes. prereq: [[3025, Math 2373] or equiv], [CSE grad student or dept consent]

EE 5585. Data Compression. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Source coding in digital communications and recording. Codes for lossless compression. Universal lossless codes. Lossless image compression. Scalar and vector quantizer design. Loss source coding theory. Differential coding, trellis codes, transform/subband coding. Analysis/synthesis schemes. prereq: CSE grad student or dept consent

EE 5601. Introduction to RF/Microwave Engineering. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Fundamentals of EM theory and transmission lines concepts. Transmission lines and network analysis. CAD tool. Lumped circuit component designs. Passive circuit components. Connectivity to central communication theme. prereq: [3601, CSE grad student] or dept consent

EE 5602. RF/Microwave Circuit Design. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Transmission lines, network analysis concepts. CAD tools for passive/active designs. Diode based circuit designs (detectors, frequency multipliers, mixers). Transistor based circuit design (amplifiers, oscillators, mixer/doubler). prereq: [5601 or equiv], [CSE grad student or instr consent]

EE 5607. Wireless Hardware System Design. (; 3 cr. ; Student Option; Every Spring)
Review of random processes, noise, modulation, and error probabilities. Basis antenna operation, power transfer between antennas, rf propagation phenomena, transmitters/receivers, transmission lines, effect of antenna performance on system performance, rf/microwave device technologies, small-signal amplifiers, mixers, power amplifiers, rf oscillators.

EE 5611. Plasma-Aided Manufacturing. (; 4 cr. ; A-F or Audit; Periodic Fall & Spring)
Manufacturing using plasma processes. Plasma properties as a processing medium. Plasma spraying, welding and microelectronics processing. Process control and system design; industrial speakers. Cross-disciplinary experience between heat transfer design issues and manufacturing technology. prereq: [[[ME 3321, ME 3322] or equiv], [upper div CSE or grad student]] or dept consent

EE 5613. RF/Microwave Circuit Design Laboratory. (; 2 cr. ; A-F only; Every Spring)
Scattering parameters, planar lumped circuits, transmission lines, RF/microwave substrate materials, matching networks/tuning elements, resonators, filters, combiners/dividers, couplers. Integral lab. prereq: [[5601 or concurrent registration is required (or allowed) in 5601], CSE grad student] or dept consent

EE 5616. Antenna Theory and Design. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Antenna performance parameters, vector potential/radiation integral, wire antenna structures, broadband antenna structures, microstrips/aperture theory, antenna measurements. prereq: [[5601 or concurrent registration is required (or allowed) in 5601], CSE grad student] or dept consent

EE 5621. Physical Optics. (; 3 cr. ; Student Option; Every Spring)
Physical optics principles, including Fourier analysis of optical systems/images, scalar diffraction theory, interferometry, and coherence theory. Diffractive optical elements, holography, astronomical imaging, optical information processing, microoptics. prereq: [3015, CSE grad student] or dept consent

EE 5622. Physical Optics Laboratory. (; 1 cr. ; Student Option; Every Spring)
Fundamental optical techniques. Diffraction and optical pattern recognition. Spatial/temporal coherence. Interferometry. Speckle. Coherent/incoherent imaging. Coherent image processing. Fiber Optics. prereq: [[5621 or concurrent registration is required (or allowed) in 5621], CSE grad student] or dept consent

EE 5624. Optical Electronics. (; 4 cr. ; Student Option; Every Fall)
Fundamentals of lasers, including propagation of Gaussian beams, optical resonators, and theory of laser oscillation. Polarization optics, electro-optic, acousto-optic modulation, nonlinear optics, phase conjugation. prereq: [[3601 or Phys 3002], CSE grad student] or dept consent

EE 5627. Optical Fiber Communication. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Components/systems aspects of optical fiber communication. Modes of optical fibers. Signal degradation/dispersion. Optical sources/detectors. Digital/analog transmissions systems. Direct/coherent detection. Optical amplifiers. Optical soliton propagation. prereq: [3015, 3601, CSE grad student] or dept consent

EE 5628. Fiber Optics Laboratory. (; 1 cr. ; Student Option; Spring Odd Year)
Experiments in fiber optics. Dielectric waveguides, modes in optical fibers, fiber dispersion/attenuation, properties of light sources/detectors, optical communication systems. prereq: [[5627 or concurrent registration is required (or allowed) in 5627], CSE grad student] or instr consent

EE 5629. Optical System Design. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Elementary or paraxial optics. Non-paraxial, exact ray tracing. Energy considerations in instrument design. Fourier optics and image quality. Design examples: telescopes, microscopes, diffraction-limited lenses, projectors, scientific instruments. prereq: CSE grad student or dept consent

EE 5640. Introduction to Nano-Optics. (3 cr. ; Student Option; Every Fall)
This course will cover the physics and technology of nano-optics and plasmonics and their potential applications in biochemical sensing, super-resolution imaging, optical trapping, light emission, and spectroscopy. The following topics will be covered: - Maxwell's equations, E&M of metals - Fresnel's equations, light propagation in periodic media - Physics of surface plasmon waves - Metallic waveguides: metal-insulator-metal vs. insulator-metal-insulator - Optical antennas - Noble metal nanoparticles: Synthesis, optical properties, and applications - Optical biosensors based on surface plasmon resonance (SPR) - Surface enhanced Raman scattering (SERS) - Surface enhanced Infrared Absorption (SEIRA) - Super-resolution imaging and near-field optical microscopy - Light transmission through nano-

apertures (extraordinary optical transmission) - Plasmonics at long wavelengths (infrared and terahertz) - Plasmonics in atomically thick materials Knowledge of Maxwell's equations, Matlab, or Mathematica coding is suggested but not required.

EE 5649. Infrared Devices and Technology. (3 cr. ; Student Option; Periodic Fall)
One of the most economically and scientifically important but relatively unknown device technologies is infrared detection, sensing and imaging. Today the application space is much larger than traditional military applications and includes weather and climate satellites, industrial process control, petrochemical analysis, pollution sensing, astronomy, and biomedical clinical diagnostics. This class covers the basic physics of infrared emission and absorption in solid-state materials, molecules, and the atmosphere. It also discusses detector technology (with particular emphasis on types of semiconductor and quantum-dot photon detectors, microbolometers, and thermoelectric detectors) and the infrared spectroscopy of molecules to show why the infrared is so important in the study of chemical, biological, and atmospheric systems. The class will also examine types of commonly used spectrometers: cavity, dispersive, and FTIR and sampling of important applications: passive and active standoff detection, satellite climate and atmospheric monitoring, industrial and petrochemical analysis, and LIDAR. Other topics will be introduced as time allows.

EE 5653. Physical Principles of Magnetic Materials. (; 3 cr. ; Student Option; Every Fall)
Physics of diamagnetism, paramagnetism, ferromagnetism, antiferromagnetism, ferrimagnetism. Ferromagnetic phenomena. Static/dynamic theory of micromagnetics, magneto-optics, and magnetization dynamics. Magnetic material applications. prereq: CSE grad student or dept consent

EE 5655. Magnetic Recording. (; 3 cr. ; Student Option; Periodic Spring)
Magnetic fundamentals, recording materials, idealized models of magnetic records/ reproduction, analytic models of magnetic record heads, sinusoidal magnetic recording, digital magnetic recording, magnetic recording heads/media, digital recording systems. prereq: CSE grad student or dept consent

EE 5657. Physical Principles of Thin Film Technology. (; 4 cr. ; Student Option; Every Fall)
Fabrication, characterization, and application of thin film and nanostructured materials and devices. Focuses on vacuum deposition. Materials science. Hands-on, team-based labs.

EE 5670. Spintronic Devices. (3 cr. ; Student Option; Spring Odd Year)
Basic concepts and physical principles underlying spintronic devices; engineering designs and basic features of matured spintronic devices: GMR and MTJ sensor, MRAM, etc; new opportunities and engineering designs and challenges of spintronic devices: STT-RAM, spin torque oscillator and all spin logic, etc.

EE 5705. Electric Drives in Sustainable Energy Systems. (; 3 cr. ; Student Option; Periodic Spring)
Role of electric drives in wind-electric systems, inertial storage, elec/hybrid vehicles. AC machines for energy-efficient operation using d-q axis modeling. Vector-/direct-torque-controlled induction motor drives. Permanent-magnet and interior-permanent magnet ac motor drives. Sensorless drives. Voltage space-vector modulation technology. prereq: [4701, CSE grad student] or dept consent

EE 5707. Electric Drives in Sustainable Energy Systems Laboratory. (; 1 cr. ; Student Option; Periodic Spring)
Lab to accompany 5705. prereq: 5705 or concurrent registration is required (or allowed) in 5705

EE 5721. Power Generation Operation and Control. (; 3 cr. ; Student Option; Spring Odd Year)
Engineering aspects of power system operation. Economic analysis of generation plants & scheduling to minimize total cost of operation. Scheduling of hydro resources and thermal plants with limited fuel supplies. Loss analysis, secure operation. State estimation, optimal power flow. Power system organizations. prereq: [4721, CSE grad student] or dept consent

EE 5725. Power Systems Engineering. (; 3 cr. ; Student Option; Spring Even Year)
Reliability analysis of large power generation/ transmission systems. Writing programs for state-by-state analysis and Monte Carlo analysis. Power system protection systems, circuit current calculations, short circuit detection, isolating faulted components. Characteristics of protection components. prereq: [4721, CSE grad student] or dept consent

EE 5741. Advanced Power Electronics. (; 3 cr. ; Student Option; Periodic Spring)
Physics of solid-state power devices, passive components, magnetic optimization, advanced topologies. Unity power factor correction circuits, EMI issues, snubbers, soft switching in dc/ac converters. Practical considerations. Very low voltage output converters. Integrated computer simulations. prereq: CSE grad student] or dept consent

EE 5745. Wind Energy Essentials. (2 cr. ; Student Option; Every Fall)
Design, planning, development/operation of wind energy facilities. Wind turbine generator types, wind forecasting/assessment, wind farm project development, grid integration, wind turbine controls, blade aerodynamics/acoustics, mechanical/hydrostatic transmissions, materials/structural reliability, wind turbine foundations, radar interference, role of public policy in wind energy. prereq: CSE grad student or dept consent

EE 5811. Biological Instrumentation. (; 3 cr. ; Student Option; Spring Odd Year)
This course will cover the physics and technology of biological instruments. The operating principles of optical, electrical, and mechanical biosensors will be discussed, followed by transport and delivery of biomolecules to the sensors. Techniques to manufacture these sensing devices, along with microfluidic packaging, will be covered. Lectures will be complemented by lab demo sessions to give students hands-on experiences in microfluidic chip fabrication, microscopy, and particle trapping experiments.

EE 5940. Special Topics in Electrical Engineering I. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Special topics in electrical and computer engineering. Topics vary.

EE 5950. Special Topics in Electrical Engineering II. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Special topics in electrical and computer engineering. Topics vary.

EE 5960. Special Topics in Electrical Engineering III. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Special topics in electrical and computer engineering. Topics vary.

EE 5970. Special Topics in Electrical Engineering IV. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Special topics in electrical and computer engineering. Topics vary. prereq: EE or CompE grad student or instr consent; only available for Rochester Campus

EE 5980. Teaching, Grading, and Lab Instruction Seminar. (1 cr. ; No Grade Associated; Every Fall)
The purpose of this course is to provide guidance and instruction in teaching, grading, and laboratory procedures. In addition, you will be provided with structured links to self-help resources, support from faculty, peers, and staff that will improve your effectiveness and efficiency while teaching and grading. The course is broken out into four components: - A pre-semester orientation and series of three workshops (4 hours) - A series of bi-weekly seminars spaced throughout the semester (approx. 4 hours) - A private teaching consultation by CEI (3 hours, lab TAs only) - A wrap-up discussion session (2 hours)

EE 5990. Curricular Practical Training. (; 1-2 cr. [max 6 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Industrial work assignment involving advanced electrical engineering technology. Review by faculty member. Final report covering work assignment. prereq: Grad student, instr consent

Endodontics (ENDO)

ENDO 5300. Endodontics Orientation. (; 2 cr. ; A-F or Audit; Every Summer)
Clinic policies/procedures. Anatomy, access, evaluation, diagnosis. Pulp biology/ microbiology. Etiology/cracks. Instrumentation. Obturation. Management of pain. Lab.

ENDO 5304. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Fall & Summer)
Diagnosis/treatment of clinical cases. Complex cases, new/unique techniques.

ENDO 5305. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Fall)
Diagnosis/treatment of clinical cases. Complex cases, new techniques. prereq: 5304

ENDO 5306. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Spring)
Diagnosis/treatment of clinical cases. Complex cases, new techniques.

ENDO 5307. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Summer)
Diagnosis/treatment of clinical cases. Complex cases, new techniques. prereq: 5306

ENDO 5308. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Fall)
Diagnosis/treatment of clinical cases. Complex cases, new techniques. prereq: 5307, dept consent

ENDO 5309. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Spring)
Diagnosis/treatment of clinical cases. Complex cases, new techniques. prereq: 5308

ENDO 5310. Advanced Clinical Endodontics. (; 1-6 cr. ; A-F or Audit; Every Summer)
Diagnosis/treatment of clinical cases. Complex cases, new techniques. prereq: 5309

ENDO 5311. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Summer)
Each student is assigned weekly periods (8 hours/week) and is responsible for all emergencies in the endodontic clinic during this time. prereq: dept consent

ENDO 5312. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Fall)
Students assigned 8 hrs/wk), are responsible for emergencies in clinic. prereq: 5311

ENDO 5313. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Spring)
Students assigned 8 hrs/wk), are responsible for emergencies in clinic. prereq: 5312

ENDO 5314. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Summer)
Students assigned 8 hrs/wk), are responsible for emergencies in clinic. prereq: 5313

ENDO 5315. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Fall)
Students assigned 8 hrs/wk, are responsible for emergencies in clinic. prereq: 5314, dept consent

ENDO 5316. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Spring)
Students assigned 8 hrs/wk, are responsible for emergencies in clinic. prereq: 5315

ENDO 5317. Advanced Endodontic Emergency. (; 1 cr. ; S-N or Audit; Every Summer)
Students assigned 8 hrs/wk, are responsible for emergencies in clinic. prereq: 5316

ENDO 5329. Clinical Seminar I. (; 1 cr. ; A-F or Audit; Every Fall)
Oral/visual presentation of endodontic cases with follow up. Presentation of surgery cases before surgery. prereq: dept consent

ENDO 5330. Review of Cases. (; 1-2 cr. ; A-F or Audit; Every Spring & Summer)
Oral/visual presentation of endodontic cases with follow up. Presentation of cases before surgery. prereq: 5329

ENDO 5331. Review of Cases. (; 1 cr. ; A-F or Audit; Every Fall)
Oral/visual presentation of endodontic cases with follow up. Presentation of cases before surgery. prereq: 5330

ENDO 5332. Review of cases. (; 1 cr. ; A-F or Audit; Every Spring)
Oral and visual presentation of endodontic cases with follow up. Presentations of surgery cases before surgeries. prereq: dept consent

ENDO 5400. Advanced Endodontics for the General Dentist. (; 1 cr. ; S-N or Audit; Periodic Fall & Spring)
Advanced diagnosis/treatment of endodontics in clinic/office setting. Internship. prereq: dept consent

ENDO 5600. Endodontic Histopathology. (; 1 cr. [max 2 cr.] ; S-N or Audit; Periodic Spring & Summer)
Physiology of pulpal/periapical diseases. Normal histology of pulpal/periapical tissues. Histopathology of abnormal pulpal/periapical tissues. Differential diagnosis of periapical radiolucencies.

English as a Second Language (ESL)

ESL 3001. Integrated Skills for Academic English. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
This course focuses on the academic and language skills necessary to thrive in a US university setting. Students will strengthen English language communication skills, both written and oral, that will help them succeed in their other content area courses at the University. Focus is on setting and achieving goals for academic success, understanding and using academic resources for the US university, and building strategies and language for more effective communication with instructors and peers in academic writing, presentations, discussions, and group projects. prereq: Non-native speaker of English

ESL 3006. English for Business Interactions. (2 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Designed for high-intermediate to advanced non-native speakers of English who are currently business majors or in closely related major. Writing for business communication, self-editing skills, communication styles, presentations, telephone communication. prereq: Non-native English speaker

ESL 3007. English for Physics. (1 cr. [max 2 cr.] ; Student Option; Every Fall & Spring)
One-credit course designed for non-native speakers of English who have high-intermediate to advanced English skills and are currently enrolled in an introductory physics course. Students taking this course will gain more support and practice with the conventions of scientific lab report writing, applying the concepts of academic integrity, interacting and participating in lab-type discussions, interpreting authentic texts (both text and aural-based), and understanding the cultural norms for seeking additional academic / social support. One of the goals of this course is to equip participants with techniques to aid in continual improvement of English skills for science and engineering contexts beyond the class. prereq: Non-native English speaker

ESL 3008. English for Chemistry. (1 cr. ; Student Option; Every Fall & Spring)
This course is designed for non-native speakers of English who are currently enrolled in an introductory chemistry course (CHEM 1061 or 1065). Students taking this course will gain more support and practice with the conventions of writing scientific lab reports, interacting and participating in classroom and lab discussions, interpreting authentic texts (both written and aural), applying the concepts of academic integrity, and understanding the cultural expectations for seeking additional academic/social support. One of the goals of this course is to equip participants with techniques to aid in continual improvement of English skills for science contexts beyond the class.

ESL 3101. Advanced English Grammar. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Form, meaning, and use of common English grammatical structures in written/oral discourse. Adverb, adjective, and noun clauses. Verb tense, aspect, and modality. Grammar beyond sentence level. Application to development of revision/editing skills. prereq: dept consent, non-native speaker of English, [C-TOEFL score 153-187 or equiv], ESL program consent

ESL 3102. English Grammar for Academic Purposes. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall)
Form, meaning, and use of an expanded repertoire of complex English grammatical structures used in academic written/oral discourse. Subordination, coordination, transition. Complex referential expressions. Complementation. Lexical grammar. Independent self-editing of academic writing. prereq: 3101, [Non-native speaker of English, [C-TOEFL score of at least 190 or equiv], dept consent

ESL 3201. Advanced English Reading and Composition. (5 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Comprehension of main ideas, organization, and support in longer authentic English texts. Expanded vocabulary comprehension. Fluency, focus, and persuasiveness through draft/revision. Focuses on accuracy/variety of

expression. prereq: Non-native speaker of English, [iBT score of 53-67 or equiv]

ESL 3202. Academic Reading and Composition. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall)
Academic writer's purpose, main ideas, and supporting evidence in English language texts. Expansion of academic vocabulary. Use of source material in English research writing in different academic genres. Focuses on revision to improve fluency/accuracy. prereq: 3201, Non-native speaker of English, [iBT score of at least 68 or equiv], dept consent

ESL 3302. Writing for Academic Purposes. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall)
Writing process. Idea generation/development, drafting, revision, editing. Focuses on different genres of academic writing, including critical response to scholarly argument, scholarly review, and incorporation of source material in writing. "Rush writing" under time pressure to improve fluency in writing. prereq: 3202, non-native speaker of English, [C-TOEFL score of at least 190 or equiv], dept consent

ESL 3402. Research Writing for the American University. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Methods of citation, conventions of style and organization, and critical thinking skills necessary for writing college-level research papers. Students select topics derived from a contemporary academic theme and apply a process approach to produce a research paper. Students learn to use the library effectively. Structure and vocabulary usage. prereq: [Non-native speaker of English, [TOEFL iBT 79 or IELTS 6.5 or MNBatt 80 or equiv]] or dept consent

ESL 3501. Advanced English Listening and Speaking. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Speaking/understanding naturally spoken English in academic activities such as lecture comprehension, note taking, class discussions, and oral presentations. Emphasizes cross-cultural interaction related to academic subject matter. prereq: Non-native speaker of English, [iBT score 53-67 or equiv], dept consent

ESL 3502. Academic Listening and Speaking. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Understanding lectures and academic discussions. Focuses on critical listening. Students produce academic presentations and participate in discussions on subjects of general academic interest. Cross-cultural awareness. Negotiation of disagreement/ misunderstanding. prereq: 3501, non-native speaker of English, [iBT score of at least 68 or equiv], dept consent

ESL 3550. Pronunciation Improvement. (; 2 cr. [max 4 cr.] ; Student Option; Every Summer)
Aspects of English pronunciation necessary to improve comprehensibility and reduce foreign-accents. Enunciation. Word, phrasal, and sentence stress. Intonation. Linking. Thought groups. Rhythm. prereq: Non-native speaker of English

ESL 3551. English Pronunciation. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Improving production/perception of sounds of English language. Intelligibility of individual sounds, rhythm, intonation, word/sentence stress, linking phenomena in fast speech. Rules of pronunciation in relation to rules of English spelling. prereq: Non-native speaker of English, dept consent

ESL 3602. Speaking for Academic Purposes. (; 4 cr. [max 8 cr.] ; Student Option; Every Spring)
Students participate in American academic interactions of various types: lectures, presentations, seminar-style discussions, informal exchanges. Presenting oneself professionally/socially in collegial settings with accuracy, variety, and flexibility. prereq: 3502, non-native speaker of English, [C-TOEFL score of at least 190 or equiv], dept consent

ESL 3900. Special Topics in ESL. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Topics vary. prereq: Non-native speaker of English

ESL 5006. English for Business Interactions. (2 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Designed for high-intermediate to advanced non-native speakers of English who are currently business majors or in closely related major. Writing for business communication, self-editing skills, communication styles, presentations, telephone communication. prereq: Grad, non-native English speaker

ESL 5008. Speaking for Professional Settings. (2 cr. ; Student Option; Every Fall & Spring)
This course is designed for graduate students who are non-native speakers of English seeking to improve their English speaking skills for professional contexts. The course assumes that students already have a high level of proficiency in English; this course will help students refine their skills for specific professional situations. The course covers topics such as small talk, networking, interviewing, and presentation skills. Students will increase their confidence to communicate in a variety of settings including informal exchanges, career fairs, conference presentations, and job interviews. prereq: Graduate student

ESL 5009. Advanced English Conversation Skills for Professionals. (2 cr. ; Student Option; Periodic Fall & Spring)
This hybrid course is designed for graduate students who are non-native speakers of English seeking to improve their English conversation skills for informal, professional settings. The goal of this course is to build fluency and apply culturally appropriate strategies to be effective communicators in English with peers, professors, and colleagues in graduate and post-graduate work. Participants will increase their fluency and confidence to communicate in a variety of situations, and on a range of topics, by engaging in speaking practice outside of class such as informational interviews, peer networking, professional development events, and co-curricular activities.

ESL 5302. Academic Writing. (4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
This four credit course is designed for graduate students for whom English is not a native language. This course focuses on foundational writing skills and emphasizes the writing process - developing ideas, drafting, revising, and editing. Guided textual analyses of readings are used to develop writing skills through the close examination of strategies employed by accomplished writers. Through ongoing, active participation, students learn to (1) match writing to audience and purpose, (2) produce different genres of academic writing, (3) incorporate source material into writing, and (4) critique their writing and that of others. Gains in basic writing skills culminate in students' ability to transfer acquired skills into discipline-specific writing. Through development of personal voice and an appreciation for the importance of the credibility of the writer, students also learn to recognize and avoid plagiarism. Problems with sentence structure, lexical grammar, and diction are addressed individually.

ESL 5900. Special Topics in English Language. (; 1-5 cr. [max 15 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics vary. prereq: Non-native speaker of English

English: Literature (ENGL)

ENGL 1001W. Introduction to Literature: Poetry, Drama, Narrative. (LITR,WI; 4 cr. ; Student Option; Every Fall & Spring)
This writing-intensive course is designed for students who wish to develop a foundational understanding of literary study, inquiry, and analysis. This course is organized around literary genres, and thus will introduce students to the fundamentals of fiction, poetry, and drama. This course will also question the boundaries of genre and of the category "literature" itself. Throughout the semester, we will reflect on the central questions: "What is Literature" and "Why do we study it"? After successfully completing this class, students will be equipped with the basic critical vocabulary and toolset for engaging in literary study. They will be prepared to analyze literary voice, tone, symbol, motif, theme, imagery, narrative, and form, among other literary aspects. They will also be equipped with several critical cultural lenses, among them gender, race, ethnicity, class, language, and national identity.

ENGL 1003W. Women Write the World. (GP,WI,LITR; 3 cr. ; Student Option; Every Fall)
Concepts in literary studies. Poems, plays, short stories, novels, essays, letters by women from different parts of world. Focuses on lives, experiences, and literary expression of women, including basic concepts of women's studies.

ENGL 1011. Laughter and Literature Through the Ages. (CIV,LITR; 3 cr. ; Student Option; Every Spring)

Explaining how comedy differs from tragedy, Aristotle observed that "Man is the only animal who laughs and cries." Like our other emotions, laughter and grief are not rational (a purely reasonable animal would not be swayed by feelings), and that's why any attempt to rationalize either of these paradoxical emotions is likely to fail. Traditionally, grief is separated from laughter by using the twin categories of comic and tragic. But even in drama or literature, grief is not utterly desperate and laughter is not always funny. This last paradox -that laughter need not be comic- serves as a basic axiom for our course, which will study not just the laughter presented in literature but historical (e.g., classical and medieval) examples. Instead of focusing on contradictory generic theories, this course examines laughter in specific dramatic, narrative and historical works from ancient Greece and Rome down through the medieval and modern eras. This course will show students how to bring a historical perspective to bear on the philosophical question, "What is laughter?" As modern readers, they will learn that the best way for us to study a past culture is to start with critical thinking about our own.

ENGL 1031. Introduction to the Short Story. (LITR; 3 cr. ; Student Option; Every Fall)
English literature boasts some of the most powerful, beautifully crafted short stories in world literature. In this class, we will use the short story as a path for understanding the craft of writing: how writers use language to present a vividly imagined world in a short number of pages. We will also examine the importance of genre: how, for example, a detective short story differs from a slice of life story. This is a lecture course, but will involve substantial student discussion. There will be 2 papers, a midterm, and a final.

ENGL 1041. Adaptation: Literature into Film. (AH; 3 cr. ; Student Option; Every Fall & Spring)
Do you refuse to see a film until you've first read the book on which it is based, so it doesn't affect how you imagine the characters? Or does a film inspire you to go back and read the original book, to see what the filmmakers changed or left out? Either way, if you love book covers that say "Now a major motion picture," this is the class for you. "Adaptation: Literature to Film" explores the historical, cultural, and aesthetic contexts in which both literary and cinematic texts are produced and received. We will ask such questions as: When we read a book or a play and then watch an adaptation of it, are we in any sense encountering the "same" text? Does the intention of the author necessarily define the meaning of a text, as readers see it? What other elements enter into the formulation of meaning(s)? How are elements of an inter-textual system always, in some sense, "in dialogue" with each other, and how do different media affect us differently -- whether emotionally, aesthetically, or intellectually? In this class you will learn skills related to interpreting and writing about both literature and moving image media (i.e., film, television, animation, etc.), including concepts and vocabulary specific to each, and your written assignments will include close readings of both books and films.

ENGL 1051. Progress & Madness: Literature, Science & Technology. (LITR; 3 cr. ; Student Option; Every Fall)
This introductory, Liberal Education course explores the conflicts and conversations that occur at the frontiers of scientific thinking and technological innovation by examining select literary and cinematic texts from a variety of historical moments and points of view. We will consider the ambivalence and anxiety that attend progress via topics such as electricity, telegraphy, photography, the railroad, the cinema, Fordism, the atomic bomb, genetic engineering, and the Internet. We will also track the archetype of the mad scientist, whose dangerous knowledge and often-fatal hubris typically turn a tale "cautionary." Students engage in detailed analysis of and reflection on works of literature and film that address both historical and contemporary developments in science and technology. The course introduces students to a range of technologies that have had a measurable impact on contemporary society. Class discussion uses the representation of these innovations as case studies in how technologies develop through the application of individual and collective effort, as well as how society adopts or rejects these technologies. By considering a variety of points of view on these developments, students are exposed to multiple perspectives through which a technology can be understood, and they develop skills in evaluating conflicting views that provide a framework with which to evaluate new technology in the future.

ENGL 1172. The Story of King Arthur. (LITR; 3 cr. ; Student Option; Every Spring)
Of all the stories familiar to the western world, few have exerted a greater influence on literary, pictorial, and musical productions than the legend of King Arthur and his Round Table. Although thousands of years have passed since the earliest versions of the story appeared, creative artists and their audiences continue to be fascinated by stories about Arthur, Merlin, Lancelot, Guinevere, Gawain, and Tristan. In this course, we will study adaptations of the legend in order to understand how literary writers and their readers remade the story to fit specific, historical circumstances. The course will pay particular attention to two related aspects of the legend. The first is the way that stories about Arthur emphasize the importance of personal integrity as a shaping force of history. The second is the relationship between personal responsibility and communal or civic order. We will see how these ideas are reshaped by writers in various times and places (ranging from early medieval Wales and England to twenty-first-century America). We will think comparatively about these times and places by paying close attention to the literary traditions and forms that are employed by writers who remake the story of Arthur.

ENGL 1181W. Introduction to Shakespeare. (LITR,WI; 4 cr. ; Student Option; Every Fall & Spring)
This course explores the richness and variety of the playwright William Shakespeare through intensive study of representative plays and poems. Although Shakespeare died over 400 years ago, he is now more popular than ever. In his own day, Shakespeare was able to entertain, shock, amuse, and inform his audiences. Today, his work continues to have a global influence in nearly every corner of the world. Through class lectures, discussions and written work, students will be challenged and inspired by the many complexities and connections that we still have with the world's greatest playwright.

ENGL 1201W. Contemporary American Literature. (LITR,WI; 4 cr. ; Student Option; Every Spring & Summer)
In this course, we will focus on the analysis of literature, specifically novels and short stories published since 1960 by American authors. We will emphasize close reading, consistently and specifically addressing issues of language and meaning. Our books will also fuel an ongoing discussion of the formal aspects of literature, including style, characterization, plot, theme, tone, and symbolism, and their capacity to evoke a powerful response from readers. This four-credit writing intensive class requires attendance at a twice-weekly lecture and once-weekly discussion section.

ENGL 1301W. Introduction to Multicultural Literatures of the United States. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Fall & Summer)
This course will include representative works by American Indian, African American, Asian American, Chicano/Chicana writers, and/or Jewish American writers, ranging from Nobel and Pulitzer prize-winning masters to upcoming genre authors and debut authors. In reading these works, we will discuss social and cultural factors informing America's literary past and present. As these authors honor identity, celebrate community, and deal with the complexities of the modern age, they also explore America's shared and problematic past. Because this course is Writing Intensive, we will spend considerable time drafting, discussing, and revising papers. Techniques for writing a paper, close reading strategies, and relevant critical approaches will be discussed. As we tease out the meanings and methods of our texts, we'll also identify and analyze key literary devices.

ENGL 1401W. Introduction to World Literatures in English. (GP,WI,LITR; 4 cr. ; Student Option; Every Fall & Spring)
This writing-intensive course will introduce you to texts from geographical locations such as Africa, Asia, and the Caribbean with the aim of examining the impact that colonialism has had on previously colonized nations, as well as the world as a whole. Through close readings of these texts, we will examine questions related to concepts such as "third world," nationalism, difference, representation, and displacement.

ENGL 1501W. Literature and Public Life. (WI,LITR,CIV; 4 cr. ; A-F only; Every Fall & Spring)
This course explores how literary language builds the collective knowledge, shared reality,

and civic relationships that make up public life. Literature's power in the public sphere goes far beyond the quiet, solitary experience of reading. We will investigate how telling stories, documenting events, imagining possibilities, communicating ideals, representing conflict, and even creating fictional characters contribute to public life. Through a wide variety of texts, we will reflect on the nature of public life and on how reading and writing build civic relationships and democratic potential. This course will also offer you two tracks for actively engaging in public life. A service-?learning option will give you the experience of building literacy, developing skills in communication and public media, and strengthening roles in work and family. This recommended learning framework can engage your role as a citizen, broaden the impact of your education, and help you explore potential professional interests. Alternatively, an individually designed public project will prompt you to consider the links between literary/media culture, personal action, and public life, and to make your own intervention in these fields. To succeed in all areas of this class you must display active engagement, independent thinking and motivation, and organization.

ENGL 1701. Modern Fiction. (LITR; 3 cr. ; Student Option; Every Fall, Spring & Summer)
In Modern Fiction, we will study a selection of novels and short stories by some of the most compelling and original writers of our time. We will read work by contemporary authors and classic modernists whose stylistic innovations influenced a generation. Because literature is a continuum in which the present responds to the past, we'll note evolutions and developments in the genre over time. We will identify and analyze such elements of fiction as theme, genre, structure, form, language, and context.

ENGL 1701H. Honors: Modern Fiction. (LITR; 3 cr. ; A-F only; Every Fall & Spring)
In Modern Fiction, we will study a selection of novels and short stories by some of the most compelling and original writers of our time. We will read work by contemporary authors and classic modernists whose stylistic innovations influenced a generation. Because literature is a continuum in which the present responds to the past, we'll note evolutions and developments in the genre over time. We will identify and analyze such elements of fiction as theme, genre, structure, form, language, and context. prereq: Honors or instr consent

ENGL 1911. Asian Americans in the First Person. (DSJ; 3 cr. ; A-F or Audit; Periodic Fall)
Americans of Asian descent comprise one of the fastest-growing racial groups in the US today. While large numbers of Asian Americans have been in the US since the middle of the 19th century, it is only in the past few decades that they have been widely recognized in literature and film. What do artistic works such as memoirs, documentary films, graphic novels, oral histories, and poetry say about the experiences of Asian Americans? How do individual artists depict themselves and others as part of families, communities, or nations? How do questions of race, racism, family, identity, immigration, labor, citizenship, inequality, gender, sexuality, media stereotypes, and activism affect the perspectives and the aesthetic choices of these works? Our readings and screenings will reference historical events such as early Chinese immigration and WWII Japanese American incarceration, as well as contemporary Asian American experiences. We will also be working with oral histories and digital stories to capture the voices and images of Asian Americans in our own communities.

ENGL 1912. America in Crisis. (DSJ; 3 cr. ; A-F only; Periodic Fall)
America has a long history of injustice that lives on today in diverse forms. This course focuses on current crises in our economy, society, and (presumably democratic) government. We will analyze and try to solve some of the pressing questions. How did we end up with the largest wage and wealth disparities in the developed world? Why are low-income and even middle-income families struggling to make ends meet? Why did our K-12 education system, once in first place, drop behind education in all developed nations? Why does our healthcare system cost more yet provide less access and quality than systems elsewhere? In short, what forces created the gulf between the lived experiences of ordinary Americans and the high ideals articulated in the US Constitution?

ENGL 1914. The Immigrant and the Refugee. (; 3 cr. ; A-F only; Periodic Fall)
This course will examine several case studies in the literature of immigration in the United States: the Declaration of Independence, our founding text, which stages the country as a ?nation of immigrants?; Ocean Vuong?s On Earth We?re Briefly Gorgeous, a queer Asian-American novel by a second generation immigrant; and the story of Ilhan Omar, Minneapolis?s congressional representative, who is a Muslim woman, Somali-American, and both immigrant and refugee. Omar?s story also serves as transition to the problem of the refugee, which we will address in two instances: the Jew in mid-twentieth century Europe, as staged in Hannah Arendt?s ?We Refugees,? and today?s Palestinian, in Edward Said?s After the Last Sky. As we read, we will consider how the figures of the immigrant and the refugee can signal both dispossession (the loss of home, nation, and community) and disruption (the troubling of these same notions of home, nation, and community that we so often take for granted).

ENGL 1918. The Worlds We Have Made: Some of Us Are Already Living in a Dystopia/ After the Apocalypse. (; 3 cr. ; A-F only; Periodic Spring)
Over the last 20 years, film, video, television and other media have increasingly depicted the end of the world/ this world. Whether in totalitarian states in which liberal freedoms no longer exist or after the decimation of the natural environment, society and its infrastructures, the idea that we are headed to ruin is an entertaining prospect (in that it is suffused into so much of our entertainment-oriented media). This course analyzes these dystopian and post-apocalyptic representations in relationship to the ?catastrophes? impacting various marginalized groups in the present, problematizing the futuristic settings of the world?s end. This course considers the modes of thought that have led and are leading to our destruction(s) and that drive our consumption of these pessimistic imaginings of the future. Together we will connect the apocalypses/ dystopias that we turn away from and disavow in the present, those we pave the way for in the future, and those that we pay good money to watch. Finally, we will consider how marginalized subjects have imagined and theorized other modes of political and social organization within their apocalyptic presents and what, if anything, we can do about these present and potentially future catastrophes. Readings may include include comics and films from Marvel and D.C., and novels and short stories by N.K. Jemisin, P.D. James Alexis, Pauline Gumbs, and Octavia Butler.

ENGL 3001V. Honors: Textual Analysis: Methods. (WI; 4 cr. ; A-F only; Every Fall & Spring)
This course is designed for English majors and minors, as well any students interested in and attracted to literature and reading. Our concern will be to develop the intellectual foundations to move past our base, instinctive reactions to literature to deeper modes of reading, interpretation, and written analysis/ argument. Our goal will be to develop the skills of slow-motion, skeptical reading: to savor the crafting of literary form and to explore how literary rhetoric engages our intellect and emotions; to read not simply for superficial content, but to engage and question the multi-faceted operation of literary texts. In terms of foundational writing skills for the English major, we will work on the development of compelling written literary arguments by breaking the writing process down into various phases. We will work with the basics of argumentation: developing a strong, coherent thesis, drafting, the logic of argument, revision, proper citation and effective use of primary and secondary sources, and more. prereq: Honors, [English major or minor or approved BIS or IDIM program with English area]

ENGL 3001W. Textual Analysis: Methods. (WI; 4 cr. ; A-F only; Every Fall & Spring)
This course is designed for English majors and minors, as well any students interested in and attracted to literature and reading. Our concern will be to develop the intellectual foundations to move past our base, instinctive reactions to literature to deeper modes of reading, interpretation, and written analysis/ argument. Our goal will be to develop the skills of slow-motion, skeptical reading: to savor the crafting of literary form and to explore how literary rhetoric engages our intellect and emotions; to read not simply for superficial content, but to engage and question the multi-faceted operation of literary texts. In terms of foundational writing skills for the English major, we will work on the development of compelling written literary arguments by breaking the writing process down into various phases. We

will work with the basics of argumentation: developing a strong, coherent thesis, drafting, the logic of argument, revision, proper citation and effective use of primary and secondary sources, and more. prereq: [English major or minor or approved BIS or IDIM program with English area]

ENGL 3002. Modern Literary Criticism and Theory. (; 3 cr. ; Student Option; Every Fall & Spring)
This course is an introduction to contemporary literary criticism and theory. The goal is to provide you with a foundation in theory's terminologies, the different methodologies used in literary and cultural analysis, and a sense of the various schools of criticism that have developed in the postwar period. We will look at the ways that various texts perform as texts; they are not transparent or one dimensional, but rather open themselves to many different readings and styles of engagement.

ENGL 3003W. Historical Survey of British Literatures I. (HIS,WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course will provide a historical survey of British literature from the Middle Ages to the end of the eighteenth century. Our focus will be on tracing the interactions between literature and wider British culture as well as on tracing the development of literary form during this period. You should leave this course being able to identify major literary trends and authors and link them to corresponding formal techniques and innovations. You should also have a sense of the major historical and political events, rulers, and social conditions in Britain at this time. Additionally, because this is a writing intensive course, you will leave this class familiar with the process of writing a research paper with a literary focus, which includes finding and successfully incorporating contemporary scholarly research about your topic into your paper, crafting an original argument, utilizing textual evidence, and evaluating existing scholarship.

ENGL 3004W. Historical Survey of British Literatures II. (HIS,WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
In this wide-ranging survey of British and post-colonial literature from the late eighteenth century to the present, we will explore representative literary texts and genres from British Romanticism, the Victorian period, Modernism, and the postwar era. Besides analyzing the language, aesthetic features, and technical construction of these literary artifacts, we will examine our readings as reflections of and reactions to social upheavals like the Industrial Revolution, challenges to the traditional role of women, scientific discoveries that sparked religious doubt, and the First World War. Additionally, because this is a writing intensive course, you will familiarize yourself with the process of writing a research paper with a literary focus, which includes finding and successfully incorporating contemporary scholarly research about your topic into your paper, crafting an original argument, utilizing textual evidence, and evaluating existing scholarship.

ENGL 3005W. Survey of American Literatures and Cultures I. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This writing-intensive course will survey the Anglophone literature of what would become the United States from the arrival of English settlers to the Civil War. We will define "literature" broadly to not only include fiction and poetry but also the sermon, the letter, the essay, the autobiography, and other non-fictional forms. Course topics will include the Puritan theology that cast such a long shadow over the American cultural imagination; the fraught literary construction in the Revolutionary era of a national identity under the influence of such Enlightenment ideals as reason, civility, cosmopolitanism, and sympathy; the Gothic doubts about democracy that attended the literature of the early republic; the rise in the mid-nineteenth century of a radical intellectual and social movement in Transcendentalism; the antebellum ideological struggles over such political issues as slavery, industrialism, women's rights, and Native American rights; and the self-conscious cultivation of a national literary aesthetic in the Romantic prose and poetry of the period later critics would come (controversially) to call "the American Renaissance."

ENGL 3006V. Honors: Survey of American Literatures and Cultures II. (DSJ,WI,LITR; 4 cr. ; A-F only; Periodic Fall & Spring)
This course will survey some of the major literary figures, aesthetic movements, and thematic concerns of US literature from the Civil War to the present. Our investigation will identify common traits in the literature that causes it to fit within three very broad literary historical categories: realism, modernism, and postmodernism. We will explore what makes literature created by the people of the United States distinctly "American" during a period that extends from the Civil War and the outlawing of slavery to women's suffrage, workers' movements, the Great Depression, the First and Second World Wars, and the civil rights movement. In addition to reading and analyzing the literature itself in terms of style, form, genre, and language, we will study it in historical context: the complex interplay between the political, the social, the cultural, and the literary in the United States. This approach rests upon the notion that literature is not created in a vacuum; it is influenced by and influences the world in which it is created.

ENGL 3006W. Survey of American Literatures and Cultures II. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course will survey some of the major literary figures, aesthetic movements, and thematic concerns of US literature from the Civil War to the present. Our investigation will identify common traits in the literature that causes it to fit within three very broad literary historical categories: realism, modernism, and postmodernism. We will explore what makes literature created by the people of the United States distinctly "American" during a period that extends from the Civil War and the outlawing of slavery to women's suffrage, workers' movements, the Great Depression, the First and Second World Wars, and the civil rights movement. In addition to reading and analyzing the literature itself in terms of style, form, genre, and language, we will study it in historical context: the complex interplay between the political, the social, the cultural, and the literary in the United States. This approach rests upon the notion that literature is not created in a vacuum; it is influenced by and influences the world in which it is created.

ENGL 3007. Shakespeare. (LITR; 3 cr. ; Student Option; Every Fall, Spring & Summer)
For over four hundred years, William Shakespeare has remained the most quoted poet and the most regularly produced playwright in the world. From Nelson Mandela to Toni Morrison, from South African playwright Welcome Msomi to Kuwaiti playwright Sulayman Al-Bassam, Shakespeare's works have continued to influence and inspire authors and audiences everywhere. This course examines representative works of Shakespeare from a variety of critical perspectives, as cultural artifacts of their day, but also as texts that have had a long and enduring vitality. This is a required course for English majors and minors, but it should also interest any student who wants to understand why and how Shakespeare continues to be one of the most important literary figures in the English language. English majors/minors must take this course A-F only grading basis.

ENGL 3007H. Honors: Shakespeare. (LITR; 3 cr. ; Student Option; Every Fall & Spring)
This course is a sampling of Shakespeare?s corpus designed for English majors and minors and for other students who wish to study his works in depth. Our goal will be to view these works simultaneously as cultural artifacts of sixteenth and seventeenth-century England and as enduring classics of world literature that seem to transcend their cultural moment. To this end, we will apply various biographical, social, linguistic, generic, theatrical, political, and intellectual contexts to the plays. We will attempt to understand how these documents from early modern England have spoken so profoundly about the enduring mysteries of human experience from the moment of their inceptive genesis to the present day. English majors/minors must take this course A-F only grading basis.

ENGL 3011. Jewish American Literature: Religion, Culture, and the Immigrant Experience. (DSJ,HIS; 3 cr. ; Student Option; Every Spring)
Immigrant? Jewish? American? What do these labels mean, why are they applied, and do they ever cease to be applicable? Can we distinguish religion from culture, and what are the implications when we try? Why is it frequently asked whether Saul Bellow was "really" a Jewish writer, but it is impossible to read Philip Roth as anything other than that? How does Grace Paley's "Jewishness" come through even when she is writing about non-Jewish characters? We will address these issues and others as we explore the

literature growing out of the Jewish immigrant experience in America, as well as the literature by Jewish writers more firmly, though still sometimes anxiously, rooted in American soil. In this course we will engage in a highly contextualized and historicized study of Jewish American literature from the 19th century to today. We will discover in these texts how inherited Jewish culture and literary imaginings, developed over centuries of interaction between Jewish communities and the "outside world," get reexamined, questioned, rejected, reimagined, reintegrated, and transformed within the crucible of American experience. The discussions that ensue will also provide a framework for engaging with the creative energies and cultural productivity of more recent immigrant communities in the United States and beyond. Immigration and the experience of immigrant communities continues to be at the forefront of American consciousness, as immigrants work to create new meanings and new narratives for their lives, and as those who immigrated before them provide contested meanings for the impact of immigration on their own narratives. This course, though grounded in Jewish narratives, will therefore provide students with an expanded vocabulary and perspective for engaging in this central and very current debate within the American experience.

ENGL 3013. Poems about Cities. (3 cr. ; Student Option; Periodic Spring)
Read/respond to selection of poems about various cities. Emphasis on poetry written in English from 18th through 21st century. Some poetry in translation/from other periods.

ENGL 3020. Studies in Narrative. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Examine issues related to reading and understanding narrative in a variety of interpretive contexts. Topics may include "The 19th-century English (American, Anglophone) Novel," "Introduction to Narrative," or "Techniques of the Novel." Topics specified in the Class Schedule

ENGL 3022. Science Fiction and Fantasy. (; 3 cr. ; Student Option; Every Fall & Spring)
Science Fiction and Fantasy will introduce students to the study of classic and contemporary science fiction and fantasy literature. Using literary techniques, students will explore the alternate realities, characters, cultures, genders, races, ecologies, politics, settings, and technologies of science fiction and fantasy primarily through reading novels and stories. Questions may include: What does speculation about the future tell us about our present and past? What does the unreal reveal about our real lives? To what extent does science fiction function as both escapist fantasy and prophetic reality?

ENGL 3023. Children's Literature. (; 3 cr. ; Student Option; Every Fall & Spring)
This course provides an overview of the traditions of children's and young adult literature. The course will address the following questions among others: What is "children's literature"? What are some of its persistent themes and stylistic traits? In what ways may we say it has changed over time? What distinguishes children's literature, from, say, "grown-up" literature? Our readings will include classic and contemporary works with a focus on diversity regarding the authors, themes, and readership. In addition to becoming familiar with this body of knowledge, we will be developing critical reading skills within a "literary" context. We will also look into how, when, and where literature (specifically children's and young adult literature) and our everyday lives intersect, impact, and interact with each other.

ENGL 3024. The Graphic Novel. (; 3 cr. ; Student Option; Every Fall & Spring)
This course aims to read and study a specific kind of narrative we call "graphic novel." The term itself is often a point of contention, but the purpose of this course is not to defend the validity of the term or the medium. "Comic books" and "graphic novels" are not endangered animals. Rather, we will use this example of "sequential art" to think through the ways this genre intersects, uses, and informs various other narrative and artistic forms as well as the way the genre may be unique with its own way of producing meaning. Comics involve a hybrid strategy of image and text, so we will attempt to keep both aspects in mind throughout the semester, never forgetting that comics are neither purely "visual" nor purely "textual." Since comics are often wedded-in mainstream culture-with certain kinds of content (e.g. superheroes), we will also investigate the characteristics of different "genres" within comics, as well as various questions about literariness.

ENGL 3025. The End of the World in Literature and History. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
For at least two and a half millennia, prophets, politicians, and poets have crafted terrifying accounts about the end of the world. This comparatist seminar examines the way different cultures have imagined a final apocalypse with particular attention to the political and social consequences of their visions. Students will read texts that focus on pandemic, extraterrestrial attack, nuclear holocaust, prophecy, cybernetic revolt, divine judgment, resource depletion, meteoric impact, or one of the many other ways in which humans write of their demise. They will use literary analysis to explore the many historical and contemporary wastelands they will encounter. They will write short papers and give in-class presentations on different kinds of apocalypse.

ENGL 3026. Mediterranean Wanderings: Literature and History on the Borders of Three Continents. (GP; 3 cr. ; Student Option; Every Spring)
Situated between three continents and at the intersection of numerous ethnic and national cultures, the Mediterranean is like no other place on earth. A place of diverse languages, religions, economies, governments, and ways of daily life, it serves as a microcosm for the world itself imagined as an integrated global system. This course explores the history of the Mediterranean with particular emphasis on the literatures it has produced over the last three millennia. As the protagonists of these epic poems, religious texts, and novels travel from one shore to another, they experience the Mediterranean as a place of violence, cultural accommodation, hope, ethnic and linguistic bewilderment, and endless moral challenge. This course will place as much emphasis on the region's history as its cultural productions. With that in mind, reading may include David Abulafia's The Great Sea in addition to The Odyssey, The Aeneid, the biblical books of Joshua and Acts, Tasso's Gerusalemme Liberata (an epic set during the first crusade), Shakespeare's The Merchant of Venice and Antony and Cleopatra, Flaubert's Salammbo, Akli Tadjer's Les ANI du Tassali, A.b. Yehoshua's Mr. Mani, and Pamuk's The White Castle.

ENGL 3027W. The Essay. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Incorporating narrative, descriptive, analytical, and persuasive techniques into writing on general topics. Effective argumentation through critical reading. Use of library resources. Awareness of context/audience.

ENGL 3028. Paranoia and Pleasure: Contemporary American Spy Novels. (LITR; 3 cr. ; Student Option; Periodic Fall & Spring)
Spy fiction emerged in Britain and the United States during the early 20th century. Since then, it proliferated thematic sub-genres such as Tom Clancy?s techno-thrillers, Vince Flynn?s CIA-trained assassin, James Rollins? science disaster group, David Baldacci?s eccentric Camel Club, and Daniel Silva?s globe-trotting Israeli spy Gabriel Allon. Spy Fi is concerned with threats to the state--Nazis, Russians, rogue states, terrorist masterminds, and moles here at home. In contrast to British Spy Fi, famously represented by James Bond, the MI6 agent who plied his trade in sophisticated or exotic settings, American novels tend to feature cowboy protagonists with military or sports backgrounds and a penchant for spectacular violence. In this course, we will read novels and analyze the development of sub-genres, protagonists, plots, settings, and language; the shifting roles of female characters; the paranoiac ideologies that hover beneath the narratives or pop to the surface; and the target audiences and sales.

ENGL 3032. Shakespeare in London. (; 3 cr. ; Student Option; Summer Odd Year)
How are different interpretations of Shakespeare?s works embodied in the theater? How are they transformed by location/context? Students attend/discuss theatrical productions.

ENGL 3040. Studies in Film. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics regarding film in variety of interpretive contexts, from range/historic development of American, English, Anglophone film.

ENGL 3045. Cinematic Seductions: Sex, Gender, Desire. (; 3 cr. [max 4 cr.] ; Student Option; Spring Odd Year)

Gender/sexuality in cinema. Sexuality/identity. Historical contexts of films. Theoretical debates regarding gender/sexuality.

ENGL 3061. Literature and Music. (LITR; 3 cr. ; Student Option; Every Spring)
In this course, we will explore the connections and parallels between music and literature, assessing both form and content and drawing upon various genres from both arts. We will examine some of the ways that musical and literary texts can change, subvert, or augment each other by applying critical and literary theories to intertextual readings. Among the subjects we may discuss are how authors use music in their work, both structurally and topically; how musicians use literature, both as lyric and as subject matter; and how members of each group engage the artistic assumptions of the other. Students will gain a greater appreciation of the varied forms of creative expression and an increased understanding of how they influence each other through close reading and listening, discussions, reflective writing, and presentations.

ENGL 3070. Studies in Literary and Cultural Modes. (; 3 cr. [max 9 cr.] ; Student Option; Fall Odd Year)
Modes of literary expression/representation that transcend conventional demarcations of genre and historical periods. Topics may include horror, romance, mystery, comedy, and satire.

ENGL 3071. The American Food Revolution in Literature and Television. (CIV; 3 cr. ; Student Option; Every Fall)
America's relationship with food and eating has changed profoundly over the last fifty years. At the heart of this revolution was a group of charismatic personalities who through writing and television brought first European and then global sensibilities to the American table. They persuaded Americans that food and cooking were not just about nutrition but also forms of pleasure, entertainment, and art; ways of exploring other cultures; and means of declaring, discovering, or creating identity. Their work would eventually transform the American landscape, helping give rise to the organic movement, farmers markets, locavorism, and American cuisine, as well as celebrity chefs, the Food Network, and restaurant reality television. In the meantime, the environmental movement was sending its own shockwaves through American consciousness of food production and consumption. The joining together of these movements--culinary and environmental--has brought a new ethical dimension to the subject that is now at the forefront of current concerns about American food. Insofar as we eat, we necessarily make choices that have profound implications for our health, our communities, the environment, and those who work in the food industry, broadly defined. This class will trace the American food revolution with the intent of understanding how our current system came to be and thinking through the ethical implications of our daily actions. We will read classic literature from the rise of the movement, in varying degrees instructional, personal and documentary, while viewing some seminal television moments for the food culture we now know. We will give particular attention to recent work that focuses on the personal and environmental ethics of food.

ENGL 3090. General Topics. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

ENGL 3091. The Literature and Film of Baseball. (LITR; 3 cr. ; Student Option; Every Spring)
Baseball is the national pastime, often evoked with Mom and apple pie in a trinity of Americanness. How do Americans represent something they see as so quintessentially themselves? In this class, we will look at the variety and complexity of answers given to that question, from sunny nostalgia, to valorization of the individual, valorization of the team, depictions of the dark side of the American dream, critiques of racial relations, and an approach that strives to eliminate both the poetry and the hand-wringing with a long hard look at numbers and facts. In this journey, we will study and participate in a number of ways that literature teaches us to understand society and ourselves. We will examine the idea of American pastoral and anti-pastoral. We will use the great variety of ways to write about baseball as a platform to consider how we come to know and believe. Throughout the course, we will examine the way baseball writing treats race and gender. We will also look at excerpts of films made from some of the texts. Comparing the films to the literature allows us to discuss what representations of America seem more palatable to producers aiming for a larger audience than literature usually reaches and to highlight ways writing makes arguments that films cannot.

ENGL 3092. The Original Walking Dead: Misbehaving Dead Bodies in the 19th Century. (LITR; 3 cr. ; Student Option; Every Fall)
Examination and analysis of 19th-century British literature about dead bodies, the science of death, burial practices and anxieties, and theories of the supernatural. This course includes fiction and poetry but also non-fiction, historical documents, and sensationalist media.

ENGL 3093. Law and Literature. (DSJ,LITR; 3 cr. ; Student Option; Every Spring)
ENGL 3093 Law & Literature examines how law and literature render diversity and social justice. The law is generally defined as a country?s (or community?s) system of rules that regulate people?s actions and administer justice to them. Literature is generally defined as an assortment of oral and written texts regarded as having intellectual, aesthetic, and moral value. This course puts legal and literary texts into conversation to answer questions about how they render the equality of and the justice for diverse peoples.

ENGL 3101. Survey of Medieval English Literature. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Major/representative Medieval English works, including Sir Gawain the Green Knight, Chaucer's Canterbury Tales, Piers Plowman, Book of Margery Kempe, Julian of Norwich's Revelations, and Malory's Morte D'Arthur.

ENGL 3102. Chaucer. (3 cr. ; A-F or Audit; Every Fall & Spring)
Major/representative works written by Chaucer, including The Canterbury Tales, Troilus and Criseyde, and the dream visions. Historical, intellectual, and cultural background of the poems. Language, poetic theory, form.

ENGL 3114. Dreams and Dream Visions. (3 cr. ; Student Option; Fall Even Year)
Introduction to the literary genre known as the medieval English "dream vision" and to the historical and theoretical discussion of dreams. We concentrate on four late medieval dream visions: Langland's Piers Plowman; Chaucer's Book of Duchess and House of Fame; and the Gawain-Poet's Pearl.

ENGL 3132. The King James Bible as Literature. (; 3 cr. ; Student Option; Fall Odd Year)
Literature of Jewish Bible ("Old Testament"). Narratives (Torah through Kings), prophets (including Isaiah), writings (including Psalms, Job, Ecclesiastes). God's words/deeds as reported by editors/translators.

ENGL 3134. Milton and Rebellion. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Milton?s three great Restoration poems? Paradise Lost, Paradise Regained, and Samson Agonistes?are the focus of this course. We?ll approach them by tracing Milton?s growth as poet: first, by familiarizing ourselves with the religious and social ideas found in his writings down to the Poems of 1645; and second, by studying the political ideas Milton initially set forth in The Tenure of Kings and Magistrates (1649). Concurrently with our study of these earlier works, you?ll be reading Paradise Lost, which you should complete by the end of the spring break. At that point, you?ll be in a position to interpret Milton?s three Restoration masterpieces in the light of his grand?and rebellious?aim of reforming England?s civil and religious community, an aim Milton boldly reaffirms in 1660 in defiance of the Restoration of monarchy.

ENGL 3141. The Restoration and the Eighteenth Century: Sex, Satire, and Sentiment. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course will introduce you to some of the best literature of the Restoration and eighteenth century in England. Think of this course as a challenge: how can you, as someone who will spend most of your life in the 21st century, learn to appreciate and learn from literature written in far different times and places? A lot depends on your willingness to empathize with ways of thinking and being that are quite different from your own and your comfort with believing that other ages were just as complicated and as interesting as the one you live in. Typical authors include Dryden, Behn, Swift, Pope, Fielding, and Burney.

ENGL 3151. Romantic Literatures and Cultures. (3 cr. ; A-F only; Every Fall & Spring)
British literature written between 1780 and 1830. Concept of Romanticism. Effects of

French Revolution on literary production. Role of romantic artist.

ENGL 3161. Victorian Literatures and Cultures. (; 3 cr. ; Student Option; Periodic Fall & Spring)
The literature of the British Victorian period (1832-1901) in relation to its cultural and historical contexts. Typical authors include Tennyson, the Brownings, Dickens, Arnold, Hopkins, and the Brontes.

ENGL 3181. Contemporary Literary Nonfiction. (LITR; 3 cr. ; Student Option; Every Spring)
Contemporary literary nonfiction from the 1960s to the present, covering developments in narrative nonfiction, memoir, and personal essay.

ENGL 3182. Irish Literature. (3 cr. ; Student Option; Every Spring)
Against competing historical and political narratives, this study of 20th century Irish writers will show how their writing challenges assumptions about identity and nation, producing literature that pointedly does not carry a flag but instead explores the oppression, injustice, and violence that the individual being suffers as a consequence of it, and INSISTS on the right to resist, create, and misbehave. Authors will include Yeats, Joyce, Beckett, as well as others.

ENGL 3201W. American Indian Literature. (DSJ,WI,LITR; 3 cr. ; A-F only; Every Fall & Spring)
Comparative studies of oral traditions and modern literature from various tribal cultures.

ENGL 3212. American Poetry from 1900. (; 3 cr. ; Student Option; Spring Even Year)
Famous and lesser-known poems from the Modernist era, the time of Frost, HD, Pound, Eliot and the Harlem Renaissance. The course attends to the intellectual and cultural background of the poets, poetic theory and form.

ENGL 3221. American Novel to 1900. (; 3 cr. ; Student Option; Fall Even Year)
Novels, from early Republic, through Hawthorne, Melville, and Stowe, to writers at end of 19th century (e.g., Howells, Twain, James, Chopin, Crane). Development of a national literature. Tension between realism and romance. Changing role of women as writers and as fictional characters.

ENGL 3222. American Novel from 1900. (3 cr. ; Student Option; Every Fall & Spring)
In this course, we will read and study novels of twentieth and twenty-first century American writers, from early 1900's realism through Modernists (e.g., Faulkner, Hemingway, Fitzgerald) to more contemporary writers (e.g., Baldwin, Ellison, Erdrich, Roth, Pynchon). We will explore each text in relation to literary, cultural, and historical developments and question the narrative and stylistic strategies specific to each work.

ENGL 3222H. Honors: American Novel from 1900. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Novels from early 1900s realism through Modernists (e.g., Faulkner, Hemingway, Fitzgerald) to recent writers (e.g., Ellison, Bellow, Erdrich, Pynchon). Stylistic experiments, emergence of voices from under-represented groups. Novelists' responses to a technologically changing society.

ENGL 3231. American Drama. (3 cr. ; Student Option; Periodic Fall & Spring)
Representative dramas from 18th through 20th centuries. Topics include staging of national identities, aesthetics of modern/contemporary drama. Production concerns of mainstream, regional, community theaters.

ENGL 3301. Asian America through Arts and Culture. (AH,DSJ; 3 cr. ; Student Option; Spring Even Year)
The course focuses on the close analysis and interpretation of individual works by a range of modern and contemporary artists. Students will analyze, critique, and interpret these works in light of the historical and social contexts in which they were produced, their creation and uses of aesthetic form, and their impact on individuals and communities. Discussion, writing assignments, and oral presentations will focus on different ways of encountering and evaluating artistic work; for instance, students will write critical analyses and production reviews as well as dialogue more informally through weekly journal entries and online discussion forums. We will examine what it means to define artists and their work as being "Asian American" and explore how other categories of identity such as gender, sexuality, or class intersect with race. We will study how art works not only as individual creativity but also as communal and social practice; for instance, we look at the history of theaters, such as East-West Players or Pan Asian Repertory Theatre, that have sustained Asian Americans as actors, playwrights, and designers.

ENGL 3303W. Writing Differences: Literature by U.S. Women of Color. (DSJ,WI,LITR; 3 cr. ; Student Option; Fall Odd Year)
Interpret/analyze poetry, fiction, and drama of U.S. women minority writers. Relationship of writer's history, ethnicity, race, class, and gender to her writings.

ENGL 3331. LGBTQ Literature: Then and Now. (DSJ,LITR; 3 cr. ; Student Option; Every Fall)
LGBTQIA life in the US has changed significantly over the past few decades. By examining a selection of poetry, prose, and film, our class will try to answer the questions: "How did we get to where we are today?" and "Where do we go next?" We will look at classic works in their historical contexts to see what was revolutionary about their publication; we will trace how they paved the way for all that followed. We will look at very new works to understand the concerns of twenty-first century LGBTQIA writers and readers. From the "lavender scare" to the Stonewall Riots to the AIDS pandemic to marriage equality to genderqueer and trans movements, we will explore how LGBTQIA authors and filmmakers have both responded to and shaped the ethos of our times.

ENGL 3350. Women Writers. (; 3 cr. [max 9 cr.] ; Student Option; Spring Odd Year)
Women writers in the 19th and/or 20th centuries. Will focus either on writers from a single country or be comparative in nature. The course will be organized thematically or according to topics of contemporary and theoretical interest.

ENGL 3401W. Decolonial Literatures of the Americas. (DSJ,WI,LITR; 4 cr. ; Student Option; Periodic Fall & Spring)
This course begins with the assumption that "coloniality" as an idea and a practice does not end when the period of colonization ends. Instead, it continues on, through material violences that maintain and reproduce the legacies of colonization--legacies such as racial and gendered violence, exploitative labor, social death, forced migration, and uneven urbanization, among other pressing issues. This course will examine and compare what have been called the "decolonial" literatures of the Americas--literatures written in English or appearing in English translation that concern communities that have been oppressed and made invisible by colonialism. We will study a network of resistance, tactics, strategies, social movements, and ongoing creative practices, and we will critique the potential and limitations of literature as a tool for activism and social change. The course will focus on understanding the relationships between literature, art, politics, and memory, and it will foster learning by doing as well as community outreach and relationship with local Indigenous communities. Students will visit local art galleries and other locales, create and maintain a class blog to be featured on the course website, and engage in their own creative forms of decolonial critique through weekly blog posts. Students' final projects will also explore decolonial perspectives and activism that specifically involves local practices of water activism and re-linking to Indigenous ways of knowing. This course does not have prerequisites beyond the University's entrance requirements.

ENGL 3501. Public Discourse: Coming to Terms with the Environment. (ENV,LITR; 3 cr. ; Student Option; Every Fall & Spring)
This course explores significant environmental issues (such as environmental justice, toxic chemicals, climate change) through the analysis of texts from diverse literary genres. It focuses as much on issues of language and meaning as it does on the subjects these texts concern. Students examine the formal dimensions of these texts, as well as their social and historical contexts. In addition, students are introduced to the underlying scientific principles, the limitations of technologies, and the public policy aspects of each of these issues, in order to judge what constitutes an appropriate response to them. Students also learn how to identify and evaluate credible information concerning the environment.

ENGL 3502. Nature Stories: Environmental Discourse in Action. (LITR,CIV; 4 cr. ; Student Option; Every Fall)

Explore contemporary texts from multiple disciplines to analyze the role of stories in interpreting nature. Emphasis on lived experience, civic motivation, and observational research that enrich effective nature writing. Optional service-learning component.

ENGL 3505. Protest Literature and Community Action. (DSJ; 4 cr. ; A-F or Audit; Every Fall)
This course combines academic analysis and experiential learning to understand, in both theory and practice, different perspectives on the power of "protest" in civic life. We will read a selection from the vast genre of progressive protest literature (pamphlets, poems, polemics, lists of demands, teaching philosophies, organizing principles, cultural histories, newsletter articles, movement chronicles, and excerpts from novels and biographies) from four key social-justice movements: the American Indian Movement, the Black Power movement, the post-Great Recession struggle for economic power, and the battle for immigrant rights. We'll also learn about this experientially as we roll up our sleeves and get involved in local community-based education initiatives and local social-justice organizations through our service-learning. Students receive initial training from CLA Career Services, The Center for Community-Engaged Learning, the Minnesota Literacy Council, as well as orientations at community sites.

ENGL 3506. Social Movements & Community Education. (CIV; 4 cr. ; A-F or Audit; Every Spring)
In this course, we'll examine four progressive social movements. After beginning with a foundational civil rights movement example, we will learn about the anti-racist feminism branch of the women's movement, often referred to as "third-wave feminism." We'll also study the Occupy movement that arose in response to the Great Recession (the financial crisis beginning in 2008). Then we'll take a look at two social movements that, while by no means underground, tend to fly below the radar: the prison abolition movement and the fight for public schools. While all of these social movements have different emphases, they also overlap quite a bit in their systemic analysis of society and their strategies for action. As activist, organizer, and trainer Rinku Sen observes, "the history of community organizing and social movements is replete with tactics learned in one movement being applied to another." As we study these social movements, community organizing will be of particular interest to us. How do the groups, collectives, nonprofits, and communities propelling these different social movements organize themselves, their leadership, their strategies, and their activities? How do they make decisions? What do meetings and planning processes look like? What do they do when they disagree? How do they recruit and mobilize? How do they communicate with and confront the general public, elected officials, and the more powerful elements of the ruling class? How do they talk about the work they're doing? How do they develop a vision of the world they'd like to live in while still inhabiting the present one, with all its flaws and injustices? We'll also examine the role of education in organizations working for social change. Whether through trainings, "political education," reading groups, or small group activities associated with popular education, many of the social-movement groups we'll study have developed educational strategies and curricula. Hands-On Learning through Community Education: As we study these social movements and their approaches to organizing and educating in the comfortable confines of our university classroom, we'll also learn about them experientially through our service-learning. That is, we'll work 2 hours per week at local education initiatives in K-12 schools, adult programs, and social-justice organizations in the non-profit and grassroots sectors, comprising a total of 24 hours by the end of the semester. This hands-on learning will strengthen our academic grasp of social movements, organizational dynamics, and teaching and community organizing by providing us with grounded perspectives. More broadly, we'll get a feel for what it's like to get involved as citizens, activists, teachers, and learners attempting to build cross-organizational coalitions. And we'll share what we learn with each other. Representatives from the Center for Community-Engaged Learning (the U's service-learning office) and various community organizations will attend our second class session to tell you about their respective sites and how you can get involved. For our third class session, you will rank the top three community sites you'd like to work at. You will then be "matched" with a community organization, and your community education work will begin as soon as this matching process is complete. (We try to honor students' first and second choices, while also making sure that you also have some fellow classmates at your site.) To help prepare you, at a time convenient for you, you will also attend a training session facilitated by the Minnesota Literacy Council (MLC) or the Center for Community-Engaged Learning--details will be provided in class.

ENGL 3507W. Introduction to Chicana/o Literature. (DSJ,WI,LITR; 3 cr. ; Student Option; Every Fall & Spring)
Cultural, intellectual, and sociopolitical traditions of Mexican Americans as they are represented in creative literature. Genres/forms of creative cultural expression and their significance as representations of social, cultural, and political life in the United States. Novels, short stories, creative nonfiction, drama, essay, poetry, and hybrid forms of literature.

ENGL 3592W. Introduction to Black Women Writers in the United States. (DSJ,WI,LITR; 3 cr. ; A-F only; Periodic Fall & Spring)
The literature of African American women writers explored in novels, short stories, essays, poetry, autobiographies, and drama from the 18th to the late-20th century.

ENGL 3593. The African American Novel. (3 cr. ; Student Option; Every Spring)
Explore African American novelistic traditions. Plot patterns, character types, settings, symbols, themes, mythologies. Creative perspectives of authors themselves. Analytical frameworks from contemporary literary scholarship.

ENGL 3597W. Introduction to African American Literature and Culture I. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Fall)
African American oral tradition, slave narrative, autobiography, poetry, essay, fiction, oratory, and drama, from colonial era through Harlem Renaissance.

ENGL 3598W. Introduction to African American Literature and Culture II. (DSJ,WI,LITR; 4 cr. ; Student Option; Every Spring)
African American oral tradition, autobiography, poetry, essay, fiction, oratory, drama. From after Harlem Renaissance to end of 20th century.

ENGL 3601. Analysis of the English Language. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to structure of English. Phonetics, phonology, morphology, syntax, semantics. pragmatics. Language variation/usage.

ENGL 3704. Introduction to Editing and Publishing. (4 cr. ; Student Option; Every Fall & Spring)
If the media doomsayers are right, editing is a dying craft. Right now, computer algorithms are writing high school hockey game recaps. Newspapers are shedding weight like dueling celebs in an US Weekly photo spread. No one is copy editing a word. But someone, somewhere, has to generate that alumni magazine, the St. Paul Saints season guide, and the co-op newsletter. In other words, a demand persists in the American marketplace for someone who knows how to turn pulp into paper. Or pixels. In this class, we'll study editing as a process, a protocol, and a philosophy. To elaborate, in the first weeks of the course, we'll study the conventions of editing (grammar, workflow, style sheets). In the second half of the course, we'll focus on substantive editing, shaping features, chasing accuracy, and wrangling the author. And we'll meet professionals who do it well. (Recent guests have included a game reviewer/editor and the founder of an online performing arts magazine.) We'll analyze why creative collaboration can feel like a playground brawl. Mostly, using real, raw manuscripts from newspapers, magazines, websites, podcasts and books, we'll practice how to screw up the written word?with the ultimate goal of screwing up a little less. prereq: jr or senior or grad student Credit will not be granted if credit has been received for ENGW 5401, ENGL 5711, ENGL 5401, or ENGL 4711

ENGL 3711. Literary Magazine Production Lab I. (4 cr. ; A-F only; Every Fall)
First of two courses. Students produce undergraduate art/literary magazine The Tower. Students decide upon identity, tone, and direction of the issue. They take on magazine staff responsibilities, call for submissions, make selections, edit/design,

set budget, and begin fund-raising. prereq: [instructor consent required, instr consent]

ENGL 3712. Literary Magazine Production Lab II. (4 cr. ; A-F only; Every Spring)
ENGL 3712 is the second of a two-semester course. In this hands-on, experiential lab, we solicit, acquire, edit, copyedit, design, typeset, proofread, print, publicize and distribute the upcoming edition of The Tower, the magazine of undergraduate art and creative writing by University of Minnesota students. This is the semester in which we bring out the finished, printed magazine, and in which we host a launch party on campus. We'll continue to apply and expand the lessons from our exploration in ENGL 3711 of the theory and history of literary magazine production in any number of ways: we'll revise our mission and theme as we draft and revise ancillary copy for the issue itself and as we refresh the marketing copy for our social media, blog, and website; we'll hone our design and typesetting skills as we lay out the issue; we'll refine our aesthetic sensibilities as we collaborate on final selections, strengthening our willingness to revise our opinions as compromise for the greater good; we'll add to our firsthand valuable on-the-job skills of budgeting, scheduling, and vendor relations; and we will deepen our understanding of the publishing profession as it exists today, locally, and nationally. prereq: [3711, instr consent]

ENGL 3714. The Business of Publishing. (3 cr. ; Student Option; Every Fall)
The Business of Publishing course, by focusing primarily on book publishing, will give a wide variety of students--from budding writers to business majors--exposure to a major industry (valued at $125 billion worldwide) that curates, promotes and monetizes the written word. There are approximately 12,000 publishers in the U.S., and of those an estimated 3,000 are literary presses. An estimated 600,000 books are published in the U.S. annually; Nielsen Book Scan reports 674 million unit sales in 2016. Book, magazine, and newspaper publishing are still the most stable types of publishing in our society and form the nexus between commerce and culture. Broadly understood, "publishing" means "to make words and images public." It encompasses many activities and forms--for instance, business newsletters and websites; social media (Facebook, Twitter, and Snapchat); and organizational and personal blogs. More specifically, it is a profession with specialized components--marketing, design, sales, subsidiary rights, bookselling--each with its own standards and best practices. It is also a field rife with innovation, producing multiple "start-ups" constantly. To "publish well" means not only to deliver content to a page or screen but also to deliver it to an audience. Publishing crosses disciplines, and innovates new channels and modes of production. As such, publishing well has implications for all of us in our daily personal and professional lives. At the University of Minnesota, we have the advantage of living in a metro area that is regularly ranked near or at the top of lists for most literate cities in the U.S. We have one of the largest concentrations of literary presses in the country outside of the East Coast. This course will take advantage of guest lecturers from Minnesota's nationally recognized publishing community. It encourages students to discuss the work of publishing with these professionals, and provides them with networking opportunities. As well as exploring in-depth the specific components of the publishing process, this class also broadens our sense of what "publishing" is. It is a process as much as it is a product. Why publishing? Why is a whole profession devoted to it? Why might we want to dedicate our own lives to it, or value the portion it already plays in them? Through this course we will understand first-hand how a book makes its way out into the world, and why that process is so important to culture and community.

ENGL 3741. Literacy and American Cultural Diversity. (LITR,DSJ; 4 cr. ; Student Option; Every Fall & Spring)
Literacy and American Cultural Diversity combines academic study with experiential learning in order to collectively build more engaged, more complex understandings of literacy, educational institutions, counter-institutional literacy programs, the grassroots and nonprofit sectors, and the struggles of a multicultural civil society in a putative democracy. We will ground our inquiry in government studies, as well as sociological, historical, and educational writings. Standard literature, such as a memoir, a selection of poems, some short fiction, and a novel will further open up our twin themes of literacy and multiculturalism ? as will less ?official? literature, such as manifestos and the transcribed stories of immigrants, refugees, and other marginalized communities. We begin with the basic understanding of literacy as reading and writing, noting that, according to the National Survey of Adult Literacy, 46% of Americans scored in the lowest two levels of a five-tiered literacy test. What does this mean? Are such tests accurate or otherwise helpful? What about your basic literacy? As you read this syllabus, you?re making use of basic abilities that you?ve likely been practicing most of your life through formal schooling, daily routines, recreational pursuits, and work-related duties. But there?s more. On another level, you bring knowledge to your reading (some conscious, some unconscious), and the ideological field supplies you with assumptions about the role of literacy in your development, the role of a university course in your plans for your personal and professional life, and your position in a society that constantly raises the standards of literacy, basing success on your ability to keep up. Thus the very word ?literacy? calls into play many beliefs we have about our class system, our cultural life, economic and political structures, and educational institutions. Accordingly, our analysis will move beyond basic ?reading and writing? to wider concepts of literacy in our society, investigating issues that have much to do with our role as public citizens involved in shaping our individual and collective future. In tandem with our ?classroom? work, our service-learning work in the community (see Your Practicum as Literacy Workers, below) will enable us to develop more ?tangible? understandings of the ways that literacy, educational theories, practices, and the construction of knowledge and skills through educational policies provide a ?map? of the shifting socioeconomic, cultural, and political terrains of the U.S., the institutional inequities that result from these arrangements, as well as the justice work needed to transform those inequities.

ENGL 3883V. Honors Thesis. (WI; 1-4 cr. ; A-F or Audit; Every Fall & Spring)
See guidelines available from English honors adviser. Prereq-Honors candidacy in English, consent of English honors advisor.

ENGL 3896. Internship for Academic Credit. (; 1-4 cr. [max 16 cr.] ; A-F only; Every Fall, Spring & Summer)
Internships at local arts organizations, businesses, or publishing firms provide experiences in communications, arts administration, marketing, and editing-as well as an understanding of what students need to do to prepare for the job market. The Department of English offers course credit in connection with internships dedicated to UMN English majors as well as internships at other sites that meet our criteria. This course will enrich student learning by providing concrete experiences to apply knowledge of oral and written communication outside the academic context. Putting English skills to work in your internship tasks will allow you to see how communication changes with contexts and audiences. You will be able to practice new voices and styles. Depending on the internship activities, you may practice communication germane to marketing, development, editing, social media, and the professional office. You will receive feedback from your site supervisors and instructors as to your understanding of these new ways of communicating. In this course, you will keep a weekly journal detailing the work you do in the internship; analyzing the significance of the work within the greater activity of the internship site; and making connections between the work and the academic learning you have done in English. You will also write a final paper on a topic agreed upon with the instructor, which should build upon the writing you've done in the journals. We'll start by having you work with your internship supervisor to create a learning agreement that outlines what you plan to learn and accomplish during your internship and how you plan to contribute and add value to the organization. You will complete various additional assignments including discussion, readings, and writing. prereq: must be a formally declared English major registered in the College of Liberal Arts and have consent of instructor.

ENGL 3960W. Capstone Seminar in English. (WI; 4 cr. ; A-F only; Every Fall & Spring)
This course is devoted to the writing of the senior paper in English. To graduate with a BA in English, students must write a 13-17 page (4,000-5,500 word) senior paper that contains substantive and original analytical insights. In this rigorous and intensive seminar,

students receive instruction on writing this paper from tenured and tenure-track faculty in English. Students learn how to choose a topic and formulate a research question, conduct primary and secondary research, and produce a written document that incorporates research and analysis. Faculty teach students to produce an extended, scholarly essay though discussions of method, research, and development; instruction in specific writing techniques; workshopping and revising drafts; solving problems; and creating a coherent and elegant final product. While the subjects about which students write vary depending on student interest and faculty expertise, at least 50% of the course grade is determined by students? writing performance. Most students fulfill the senior paper requirement with a traditional seminar paper, but students sometimes complete alternative projects, such as blogs, analytic projects that incorporate creative or personal elements, collaborative projects, or projects that involve the creation of a podcast, video, web site, or some other means of documenting student learning and writing skills. The senior seminar also functions as a capstone experience that fulfills many of the Student Learning Outcomes for the English major. Prerequisites for Admission: Admission to ENGL 3960W requires English major status and completion of ENGL 3001W with a minimum grade of C-minus. Priority will be given to students with senior status who have completed the majority of the major requirements, as well as to students who plan to graduate in the term they are requesting to take the senior seminar.

ENGL 3993. Directed Study. (1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq-One 3xxx, [English major or minor or [BIS or IDIM or ICP] with English concentration], [jr or sr], instr consent, dept consent, college consent.

ENGL 4003. History of Literary Theory. (; 3 cr. ; A-F or Audit; Fall Odd Year)
How thinkers from classical to modern times posed/answered questions about language (how words mean), audience (to whom they mean), and the literary (how literary writing differs from other forms of writing). Works by Plato, Aristotle, Augustine, Christine de Pizan, Dante, Sidney, Behn, Wordsworth, Shelley, and Woolf.

ENGL 4152. Nineteenth Century British Novel. (3 cr. ; A-F or Audit; Every Fall & Spring)
British novel during the century in which it became widely recognized as a major vehicle for cultural expression. Possible topics include the relation of novel to contemporary historical concerns: rise of British empire, developments in science, and changing roles for women; formal challenges of the novel; definition of realism.

ENGL 4232. American Drama by Writers of Color. (DSJ; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Selected works by African American, Latinx, Native American, and Asian American playwrights. How racial/ethnic differences are integral to shaping different visions of American drama. History of minority/ethnic theaters, politics of casting, mainstreaming of the minority playwright. Students in this class will have the opportunity to participate in service-learning.

ENGL 4233. Modern and Contemporary Drama. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Works written for theater in 19th/20th century. Emphasizes how major aesthetic forms of modern drama (the well-made play, realism, expressionism, symbolism, epic theater, absurdism) presented not just distinctive theatrical styles, but also new ways of .seeing. for the theatrical spectator. How social differences, as informed by gender, class, and race, inform content/presentation.

ENGL 4311. Asian American Literature and Drama. (DSJ,LITR; 3 cr. ; A-F or Audit; Fall Odd Year)
Literary/dramatic works by Asian American writers. Historical past of Asian America through perspective of writers such as Sui Sin Far and Carlos Bulosan. Contemporary artists such as Frank Chin, Maxine Hong Kingston, David Henry Hwang, and Han Ong. Political/ historical background of Asian American artists, their aesthetic choices.

ENGL 4612. Old English I. (3 cr. ; Student Option; Periodic Fall)
"I am learning Anglo-Saxon and it is a vastly superior thing to what we have now" (Gerard Manley Hopkins, letter to fellow poet Robert Bridges, 1882). This course is an introduction to the rich language and literature of Anglo-Saxon England (ca. 500-1100). "Old English," or as it is sometimes known, "Anglo-Saxon," is the earliest form of the English language; therefore, the primary course goal will be to acquire the ability to read Old English texts in the original. No previous experience with Old English or any other language is necessary or expected; undergraduates and graduate students from all departments are welcome. For graduate students in English, Old English I may count for the rhetoric/language/literacy distribution area. This course also fulfills the literary theory/linguistic requirement for the undergraduate English major. A knowledge of Old English will allow you to touch the most ancient literary sensibilities in the English tradition; these sensibilities are familiar and strange at the same time, as we sense our deep cultural connection to these texts across the centuries, yet also find that the past is a strange place indeed. The power of Old English literature has profoundly influenced authors such as Tennyson, Pound, Graves, Wilbur, Hopkins, Gunn, Auden, Seamus Heaney, C.S. Lewis, and of course, J.R.R. Tolkien.

ENGL 4613. Old English II. (; 3 cr. ; Student Option; Periodic Spring)
The second semester of Old English is devoted to a full translation and study of the great Anglo-Saxon epic "Beowulf." J.R.R. Tolkien wrote of the poem that "its maker was telling of things already old and weighted with regret, and he expended his art in making keen that touch upon the heart which sorrows have that are both poignant and remote." "Beowulf" is an exciting tale of strife and heroism; but it is also a subtle meditation upon the character of humanity as it struggles to understand the hazards of a harsh world, the inscrutability of fate, and the nature of history itself. "Beowulf" is not only important for a detailed understanding of Anglo-Saxon culture, but it is also a significant and moving poetic achievement in the context of world literature. We will read and translate the poem in the original Old English; thus ENGL 4612 (or a similar course resulting in a basic reading knowledge of Old English) is a prerequisite. "Beowulf" has been the object of intensive scholarly study; we will delve into the debates over the poem's date, genesis, manuscript and historical context and critical interpretation. Spending an entire semester studying one complex work can be an invaluable experience. Please contact the instructor for any questions concerning the prerequisite.

ENGL 4722. Alphabet to Internet: History of Writing Technologies. (; 3 cr. ; Student Option; Every Fall)
Equivocal relation of memory and writing. Literacy, power, control. Secrecy and publicity. Alphabetization and other ways of ordering world. Material bases of writing. Typographical design/expression. Theories of technological determinism.

ENGL 5001. Ph.D. Colloquium: Introduction to Literary Theory and Literary Studies in the Modern University. (; 3 cr. ; Student Option; Every Fall)
Where and what is literary study vis-a-vis the history of the discipline, of the humanities, and of the university--all in the context of a graduate education. Literary theory focusing on key theoretical works that address the discipline, the humanities, and the university. Prerequisite: English grad student

ENGL 5020. Studies in Narrative. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Examine issues related to reading and understanding narrative in a variety of interpretive contexts. Topics may include "The 19th-century English (American, Anglophone) Novel," "Introduction to Narrative," or "Techniques of the Novel." Topics specified in the Class Schedule.

ENGL 5040. Theories of Film. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
Advanced topics regarding film in a variety of interpretive contexts, from the range and historic development of American, English, and Anglophone film (e.g., "Fascism and Film," "Queer Cinemas"). Topics and viewing times announced in Class Schedule. prereq: Grad student or instr consent

ENGL 5090. Readings in Special Subjects. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
General background preparation for advanced study. Diverse selection of literatures written in English, usually bridging national cultures and time periods. Readings specified in Class Schedule.

ENGL 5110. Medieval Literatures and Cultures: Intro to Medieval Studies. (; 3 cr. [max 9 cr.] ; Student Option; Every Spring)
Major and representative works of the Middle Ages. Topics specified in the Class Schedule.

ENGL 5121. Readings in Early Modern Literature and Culture. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topical readings in early modern poetry, prose, fiction, and drama. Attention to relevant scholarship or criticism. Preparation for work in other courses or seminars. prereq: Grad student or instr consent

ENGL 5140. Readings in 18th Century Literature and Culture. (; 3 cr. ; Student Option; Every Spring)
Literature written in English, 1660-1798. Topics may include British literature of Reformation and 18th century, 18-century American literature, a genre (e.g., 18th-century novel). prereq: Grad student or instr consent

ENGL 5150. Readings in 19th-Century Literature and Culture. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics may include British Romantic or Victorian literatures, American literature, important writers from a particular literary school, a genre (e.g., the novel). Readings.

ENGL 5170. Readings in 20th-Century Literature and Culture. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
British, Irish, or American literatures, or topics involving literatures of two nations. Focuses either on a few important writers from a particular literary school or on a genre (e.g., drama). Topics specified in Class Schedule.

ENGL 5300. Readings in American Minority Literature. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall)
Contextual readings of 19th-/20th-century American minority writers. Topics specified in Class Schedule.

ENGL 5501. Origins of Cultural Studies. (3 cr. ; Student Option; Periodic Fall & Spring)
Intellectual map of the creation of cultural studies as a unique approach to studying social meanings. Key figures and concepts, including nineteenth- and early twentieth century precursors.

ENGL 5510. Readings in Criticism and Theory. (; 3 cr. [max 9 cr.] ; Student Option; Spring Odd Year)
Major works of classical criticism in the English critical tradition from Renaissance to 1920. Leading theories of criticism from 1920 to present. Theories of fiction, narratology. Feminist criticisms. Marxist criticisms. Psychoanalytic criticisms. Theories of postmodernism.

ENGL 5593. The African-American Novel. (3 cr. ; Student Option; Every Spring)
Explore African American novelistic traditions. Plot patterns, character types, settings, symbols, themes, mythologies. Creative perspectives of authors themselves. Analytical frameworks from contemporary literary scholarship.

ENGL 5597. Seminar: Harlem Renaissance. (3 cr. ; Student Option; Every Fall & Spring)
Multidisciplinary review of Jazz Age's Harlem Renaissance: literature, popular culture, visual arts, political journalism, major black/white figures. prereq: Grad student or instr consent

ENGL 5701. Great River Review. (4 cr. ; Student Option; Every Spring)
Students will be assigned roles, both editorial and managerial, to assist in production of The Great River Review journal. They will explore and present on the history of the small magazine in American literature and meet with Twin Cities publishing professionals.

ENGL 5743. History of Rhetoric and Writing. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Assumptions of classical/contemporary rhetorical theory, especially as they influence interdisciplinary field of composition studies. prereq: Grad student or instr consent

ENGL 5790. Topics in Rhetoric, Composition, and Language. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule. prereq: Grad student or instr consent

ENGL 5800. Practicum in the Teaching of English. (; 1-3 cr. ; Student Option; Every Fall)
Discussion of and practice in recitation, lecture, small-groups, tutoring, individual conferences, and evaluation of writing/reading. Emphasizes theory informing effective course design/ teaching for different disciplinary goals. Topics vary. See Class Schedule. prereq: Grad student or instr consent

ENGL 5805. Writing for Publication. (; 3 cr. ; Student Option; Fall Even Year)
Conference presentations, book reviews, revision of seminar papers for journal publication, and preparation of a scholarly monograph. Style, goals, and politics of journal and university press editors/readers. Electronic publication. Professional concerns. prereq: Grad student or instr consent

ENGL 5992. Directed Readings, Study, or Research. (1-3 cr. [max 45 cr.] ; Student Option; Every Fall, Spring & Summer)
TBD Prereq-Grad student or instr consent.

English: Creative Writing (ENGW)

ENGW 1101W. Introduction to Creative Writing. (LITR,WI; 4 cr. ; Student Option No Audit; Every Fall & Spring)
Writing poetry/prose. Small group workshops, lectures by visiting writers. prereq: Students may not audit this course

ENGW 1102. Introduction to Fiction Writing. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)
Beginning instruction in art of fiction: characterization, plot, dialogue, and style. Writing exercises to generate ideas. Students read/discuss published fiction and their own writing.

ENGW 1103. Introduction to Poetry Writing. (; 3 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
Beginning instruction in art of poetry. Discussion of student poems and contemporary poetry. Ideas for generating material. Writing exercises in/out of class.

ENGW 1104. Introduction to Literary Nonfiction Writing. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)
Art of literary nonfiction. Discussion of student work and contemporary creative nonfiction. Ideas for generating material. Writing exercises. prereq: Students not allowed to audit this course

ENGW 3102. Intermediate Fiction Writing. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Exercises, experiments, assigned readings, discussion of student work. prereq: [EngW 1101 OR 1102 OR 1103 OR 1104], students cannot audit course

ENGW 3104. Intermediate Poetry Writing. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Exercises, experiments, assigned readings, discussion of student work. prereq: [1101 or 1102 or 1103 or 1104], students cannot audit course

ENGW 3106. Intermediate Literary Nonfiction Writing. (3 cr. ; Student Option No Audit; Every Fall & Spring)
Exercises, experiments, assigned readings, discussion of student work. prereq: [1101 or 1102 or 1103 or 1104], students cannot audit course

ENGW 3110. Topics in Creative Writing. (; 3 cr. [max 9 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Topics specified in Class Schedule. prereq: 1101 or 1102 or 1103 or 1104 or dept consent

ENGW 3801W. Eat, Write, Learn: Creative Writing in Spain. (AH,WI; 3 cr. ; Student Option No Audit; Periodic Spring & Summer)
This undergraduate creative writing class which satisfies both the LE and the Writing-Intensive requirements focuses on the experience and the literary evocation of travel, with students based first in the capital, Madrid, and then in Toledo, a medieval city in the center of Spain. In Madrid, students will write about the Spanish tradition of eating twelve grapes at the stroke of midnight on New Year's eve; they will compare the characteristics of two different plazas; they will write poetry about art in the Prado Museum. In Toledo, they will wander through tangled streets, shops, cathedrals, fortresses, synagogues and museums, taking notes for poems, stories, and essays as they go. Madrid is a vibrant, modern European center; Toledo, a beautifully preserved city on a hill, has been declared, in its entirety, a national monument. For centuries an historic, scholarly and artistic center, Toledo was long famed for its religious tolerance, with Christian, Jewish, and Muslim populations coexisting within its walls. In both locations, we will have guided tours of Spanish monuments and museums, and students will reflect on the experience of travel via many different types and styles of writing assignments: the daily post-card, the food review, the creative travel guide, the work of ekphrasis, the annotated map, the daily journal, etc. Why do we travel and what do we gain

from visiting cultures and environments that may be unfamiliar? Writing and revising will be emphasized as creative ways of reflecting on the phenomenon of departure and return.

ENGW 3960W. Capstone Seminar in Creative Writing. (WI; 4 cr. ; A-F only; Every Fall & Spring)
This course is devoted to the writing of the senior paper in creative writing. To graduate with a BA in English, students with an interest in creative writing may choose to produce a substantial manuscript of poetry, literary fiction, or literary nonfiction rather than an extended, scholarly essay. In this advanced creative writing workshop, students receive instruction on writing this manuscript from tenured and tenure-track faculty in English. Class sessions typically include in-class writing exercises, which are then expanded into more finished works of poetry or prose reviewed by the faculty and discussed in workshops by the students themselves. Writing exercises and assignments lead, at the end of the semester, to a finished, thoroughly revised manuscript of at least 2,500 words. Faculty teach students to produce a significant body of poetry, fiction, or creative nonfiction though discussions of method, craft, and development; instruction in specific writing techniques; workshopping and revising drafts; solving problems; and creating a coherent and elegant final product. While the subjects about which students write vary depending on student interest and faculty expertise, at least 50 percent of the course grade is determined by students? writing performance. The senior seminar also functions as a capstone experience that fulfills many of the Student Learning Outcomes for the English major and the capstone course for those who are pursuing a Minor in Creative Writing. Prerequisites for Admission: Admission to ENGW 3960W requires: (1) English major status and completion of ENGL 3001W with a minimum grade of C-minus; (2) completion of at least six credits of creative writing courses, including one intermediate (ENGW 3xxx-level) or advanced creative writing workshop, preferably in the genre of the ENGW 3960W workshop to which you are applying; and (3) submission of a creative writing sample. Admission is by permission of the instructor. Priority will be given to students with senior status who have completed the majority of the major requirements, as well as to students who plan to graduate in the term they are requesting to take the senior seminar.

ENGW 4205. Screenwriting. (3 cr. ; Student Option No Audit; Every Fall & Spring)
An introductory workshop to screenwriting basics, including formatting, style and structure. In-class and take-home exercises will assist the students in learning techniques for developing engaging characters, writing concise description and vivid dialogue, and outlining a usable plot. prereq: One EngW or EngL 3xxx course, [permission number available in creative writing office]

ENGW 5102. Graduate Fiction Writing. (4 cr. [max 8 cr.] ; Student Option No Audit; Every Fall & Spring)
Advanced workshop for graduate students with considerable experience in writing fiction.

ENGW 5104. Graduate Poetry Writing. (4 cr. [max 8 cr.] ; Student Option No Audit; Every Fall)
Advanced workshop for graduate students with considerable experience in writing poetry. Students will explore new poetic possibilities while studying contemporary poetry and poetics.

ENGW 5106. Graduate Literary Nonfiction Writing. (4 cr. [max 8 cr.] ; Student Option No Audit; Periodic Fall)
Advanced workshop for graduate students with considerable experience in writing literary nonfiction.

ENGW 5130. Topics in Graduate Creative Writing. (; 4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Workshop. Might include work in more than one genre. prereq: instr consent

ENGW 5310. Reading as Writers. (; 4 cr. [max 8 cr.] ; Student Option No Audit; Every Fall)
Special topics in reading fiction, literary nonfiction, poetry. Topics specified in Class Schedule.

ENGW 5606W. Literary Aspects of Journalism. (WI; 3 cr. ; Student Option; Every Spring)
Journalism isn't fiction. Yet the relationship between what is true and what is artfully constructed toward a "larger truth" -- beyond the facts -- has a complex and intriguing history. This writing-intensive course explores that relationship through close readings of some the best writers of long-form nonfiction, starting with the birth of the novel from journalistic roots in the 18th century and ending with postmodern forms that challenge the notion of what we can ever know. Discover the literary devices used by Stephen Crane's reported street scenes or Nellie Bly's first-hand investigations into conditions for the mentally ill in the 19th century, and, later, Truman Capote's nonfiction novel about a Kansas farm family's murder. Readings include works by pivotal 20th-century writers such as John Hersey, Joseph Mitchell, Lillian Ross, Michael Herr, Norman Mailer, Gay Talese, Joan Didion, Tom Wolfe, and Hunter S. Thompson, and will trace how their pioneering methods influenced contemporary journalism as well as the documentary films of Errol Morris and contemporary nonfiction writers expanding into new forms.

ENGW 5701. Great River Review. (4 cr. ; Student Option; Every Spring)
Students will be assigned roles, both editorial and managerial, to assist in production of The Great River Review journal. They will explore and present on the history of the small magazine in American literature and meet with Twin Cities publishing professionals.

ENGW 5993. Directed Study in Writing. (1-4 cr. [max 18 cr.] ; Student Option; Every Spring & Summer)
Projects in writing poetry, fiction, drama, and nonfiction, or study of ways to improve writing. Prereq-instr consent, dept consent, college consent.

Entomology (ENT)

ENT 1001. How Insects Shape Society: Pollinators, Pests, and Policy. (CIV; 3 cr. ; A-F only; Every Fall)
Do you eat genetically modified foods, or do you avoid them? Vaccinate, or do not vaccinate? Did you know these are in part insect related questions? Insects make up more than half of the living organisms on this planet, and they have had a profound impact in shaping human society and culture. Even so, insects are swatted, stomped, squished, and otherwise misunderstood. In this course students will explore the complex, and often uncomfortable, relationships between insects and humans and explore the ethical dilemmas posed by our close relationships with the insect world. Ultimately this course examines the interactions between insects and humans, focusing on contemporary topics that explore how insects dictate human actions, policies, and behaviors. Topics include: human perception of insects; basic concepts in insect biology and behavior; environmental and cultural importance of insects; the role of insect pests in determining human food choice; insect vectors and disease transmission; perception and awareness about humanity?s role in nature.

ENT 1004. The Insects. (; 3 cr. ; A-F only; Every Fall & Spring)
Insects represent one of the most abundant and diverse life forms on Earth, and their environmental importance is displayed across both terrestrial and aquatic ecosystems. Beyond environmental importance, insects shape human society through their impact on our health, the pollination of our food crops, and damage to our commodities and homes. Insect Biology is an introductory entomology course on the biology and ecology of insects, their classification, and their interactions with the environment and human society. This course will provide background on insect diversity and physiology, while providing insight into how scientists examine the roles of insects in medicine, agriculture, advances in genetics, and ecology. These topics will provide fundamental biological knowledge needed to make informed decisions about insect-related topics in a global society.

ENT 1005. Insect Biology with Lab. (BIOL; 4 cr. ; A-F only; Every Fall & Spring)
Insects represent one of the most abundant and diverse life forms on Earth, and their environmental importance is displayed across both terrestrial and aquatic ecosystems. Beyond environmental importance, insects shape human society through their impact on our health, the pollination of our food crops, and damage to our commodities and homes. Insect Biology is an introductory entomology course on the biology and ecology of insects, their classification, and their interactions with the environment and human society. This course will provide background on insect diversity and physiology while providing

insight into how scientists examine the roles of insects in medicine, agriculture, advances in genetics, and ecology. These topics will provide fundamental biological knowledge needed to make informed decisions about insect-related topics in a global society.

ENT 1021. An Introduction to Forensic Entomology. (3 cr. ; A-F only; Every Spring)
What can maggots and beetles collected at a crime scene tell investigators about the body? Often, insect evidence collected at the scene of a crime can help experts make a variety of conclusions, such as time of death and whether or not the body has been moved from the original crime scene. In this seminar, students will explore how insect evidence can be used in various ways in the field of forensic science. This class will discuss the scientific approaches and techniques involved in forensic entomological analysis. Topics will include, but are not limited to, the different insects found in decomposing bodies, how insect development time can be affected by factors like the weather or body placement, and how insect evidence can be useful to both crime scene investigators and medical examiners.

ENT 1906. Magnificent, Miniature Minds: From Dancing Honeybees to Cyborgs. (; 1 cr. ; A-F only; Periodic Fall)
Did you know that honeybees can be trained to recognize human faces or that desert ants can count their steps while walking? Have you ever thought about how an octopus ?knows? how to match its body coloration to its marine environment and a monarch butterfly can find its over-wintering site located thousands of miles away? These are just a few examples of the extraordinary abilities that invertebrate animals display, reflecting the mighty power of their miniature brains and nervous systems. In this course, we will discuss the fascinating behaviors of animals with miniature brains and how their numerally-limited nervous systems enable them to do what they do. We will also explore how a deeper understanding of small-brain networks can inform us about how our own brains work, and how such knowledge can be used to engineer adaptive robots, cyborgs and smart machines. This course is designed to be integrative?including disciplines intersecting with animal behavior, entomology, evolution, ecology, neuroscience, psychology and bioengineering. A major goal of this course is to widen one?s view of the importance of invertebrate animals in the field of neuroscience and gain an appreciation of the translational impact that this knowledge can have and will continue to have on our society and daily lives. Students will also be introduced to basic concepts in neurobiology and learn how small neural networks operate.

ENT 1908. "Engineered" Insects: Science, Ethics, Society and the Environment. (; 1 cr. ; A-F only; Periodic Fall)
What does it mean if an organism is genetically engineered? Genetic engineering has been fundamental to biological research for decades but is now making headlines as genetic approaches appear more and more in our everyday lives. Insect pests are one of the major threats to humans as they eat our food, eat our homes, eat us, transmit diseases, and wreak havoc on crops. Increasingly so, genetic engineering is used to stop these insect pests and the diseases they transmit, including Zika and Dengue. In this course, we will explore how insects affect so many aspects of our life, how researchers are using genetic engineering to solve insect issues, and the pros and cons of using genetically engineered insects. The course will include interactive lectures, short readings and videos, and a variety of discussions with other students and faculty

ENT 1909. Got Bees? Declines and Conservation of Honey bees and Native bees. (ENV; 3 cr. ; A-F only; Periodic Fall)
Course Description: Humans are largely aware that bees are declining globally, due in large part to human land use, agricultural practices, and the changing climate. The loss of insect pollinators, including native and honeybees, presents a grand challenge that will have cascading effects throughout ecological systems and human food crop systems. Preservation of pollination services is not only an environmental issue, it is also an important challenge facing our society and world. How we, as a society, choose to address this problem will reflect on how we value the environment and the services it provides. This course is designed to reflect on the shared sense of responsibility for building a community that will address this issue. Intended audience: Undergraduates who may or may not be majoring within the sciences. Students interested in how humans interact with the environment, and how the choices we make as a society impact environmental processes. No prerequisite courses required.

ENT 2884. The Six-legged Conquerors: How insects have shaped human history. (HIS; 3 cr. ; A-F or Audit; Every Fall)
Insects have had an immense yet underappreciated impact on the course of human history and civilization. Through their effects as carriers of disease, insects have decided the outcomes of numerous battles and wars, often causing many more deaths than weapons did. On the other hand, beneficial insects have made important contributions to the development of many industries, in particular related to textiles and agriculture, and they also serve as important sources of food in many cultures. Because of their varied and important roles in human life and well-being, insects feature prominently in sacred texts and have thus influenced spiritual and religious thought through the ages. And from Greek times until the present, insects have contributed greatly to the development of scientific thought. Many of the great naturalists throughout history ? from Aristotle to Darwin to EO Wilson ? have had an inordinate fascination with insects. In the second half of the 20th century and beyond, insects sparked the environmental movement, serve as models for innovating technologies such as robots, and continue to shape our lives in fascinating, challenging and novel ways. In this class we will discuss the major ways in which the fates of humans and insects have been intertwined over the course of human history. Throughout the class we focus on ways that historical inquiry can be used to elucidate entomological questions and, conversely, how entomological knowledge can be brought to bear to solve historical mysteries.

ENT 2920. Introductory Lectures in Entomology. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Introductory lectures or labs in special fields of entomological research. Given by visiting scholar or regular staff member.

ENT 3021. Insect Biodiversity and Evolution. (; 4 cr. ; A-F only; Every Fall)
Insects are the most diverse group of organisms on Earth with almost 1 million described species. Millions more remain to be described, especially in tropical regions of the world. Insects come in a remarkable array of sizes, colors, and shapes. Taxonomists use this morphological complexity as the primary means of identifying insects, but also for inferring evolutionary relationships. In this course, we will learn how to identify insects, explore methods of collection and curation of insects, discuss their evolutionary relationships, see how insects fit in the natural world, and discuss exciting new efforts to inventory, describe, and conserve the remarkable diversity of insects.

ENT 3211. Insect Pest Management. (3 cr. ; A-F only; Every Spring)
Management of Insect Pests is designed for upper division undergraduates in any major or minor. The course will emphasize principles of insect pest management and draw from examples related to agricultural, horticultural and landscape and urban systems. Conventional (nonorganic) and organic approaches, the use of social media and modern technology, and economic, environmental and social consequences of diverse tactics (chemical, cultural, biological, genetic, etc.) will be covered by the Instructor and, on occasion, by guest lecturers. Student debates on pesticide-pollinator and genetic engineering issues will provide real-world context and insights on complexities of insect pest prevention and management.

ENT 3275. Insect-transmitted diseases of humans. (3 cr. ; Student Option; Every Spring)
What?s so attractive about human blood? How have human interactions with insects evolved? Insects and ticks transmit viral, bacterial, protozoan and filarial diseases to humans, particularly in tropical countries. Zika, most recently, and also dengue and other mosquito-borne viruses pose an emerging challenge in the southern US as climate change increases the range of important vector species. Lyme disease and other tick-borne diseases are increasing in the US, and pose challenges in diagnosis and treatment. This course covers contemporary topics in "Medical Entomology" that will provide an overview of arthropod-borne disease and its impacts on global health from the perspective of insect vectors and microbial pathogens. Students will explore historical, contemporary and

epidemiologic stories demonstrating exposure and control strategies via lecture, student discussions, laboratory demonstrations, and critical review of current best practices in medical entomology. This course is designed for upper division undergraduate and graduate students in any major or minor.

ENT 3294. Directed Research in Entomology. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research course will be required to use the University-wide online directed research contract process in order to enroll. prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

ENT 3910. Introduction to Research in Entomology. (1-6 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
This course will provide the framework for offering field, lab, or library-based entomological research under the supervision of faculty or graduate-faculty staff in the Department of Entomology. It is anticipated that this course will provide hands-on experiences, and that the research focus will generally be aligned with the research specialization of the instructor.

ENT 3925. Insects, Aquatic Habitats, and Pollution. (; 3 cr. ; A-F or Audit; Every Fall)
Effects differing classes of pollutants have on insects that are aquatic. Insect life-cycle dynamics, trophic guilds, community structure. Hypotheses to explain community structure in streams, rivers, wetlands, ponds, lakes, reservoirs. Organic pollution, eutrophication, heavy metal pollution, runoff/siltation, acidification, thermal pollution. Changes in aquatic insect community structure. Designing/maintaining biological monitoring networks. prereq: [[3005 or Biol 3407 or FW 2001], [jr or sr]] or instr consent

ENT 4021. Honey Bees and Insect Societies. (; 3 cr. ; Student Option; Fall Odd Year)
Natural history, identification, and behavior of honey bees and other social insects. Evolution of social behavior, pheromones and communication, organization and division of labor, social parasitism. Lab with honey bee management and maintenance of other social bees for pollination. prereq: Biol 1009 or instr consent

ENT 4096. Professional Experience Program: Internship. (; 1-3 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Professional experience in entomology firms or government agencies through supervised practical experience; evaluative reports and consultations with faculty advisers and employers. prereq: COAFES jr or sr, complete internship contract available in COAFES Career Services before enrolling, UC only, instr consent

ENT 4251. Forest and Shade Tree Entomology. (; 3 cr. ; Student Option; Every Fall)
Biology, ecology, population management of forest/shade tree insects. Emphasizes predisposing factors/integrated management. Lecture/lab.

ENT 5011. Insect Structure and Function. (4 cr. ; A-F or Audit; Every Spring)
Comparative study of insect structures/functions from evolutionary perspective. Introduction to physiology of digestion, respiration, other organ systems.

ENT 5021. Insect Biodiversity and Evolution. (4 cr. ; Student Option; Every Fall)
Insects are the most diverse group of organisms on Earth with almost 1 million described species. Millions more remain to be described, especially in tropical regions of the world. Insects come in a remarkable array of sizes, colors, and shapes. Taxonomists use this morphological complexity as the primary means of identifying insects, but also for inferring evolutionary relationships. In this course, we will learn how to identify insects, explore methods of collection and curation of insects, discuss their evolutionary relationships, see how insects fit in the natural world, and discuss exciting new efforts to inventory, describe, and conserve the remarkable diversity of insects.

ENT 5041. Insect Ecology. (3 cr. ; Student Option; Fall Even Year)
Synthetic analysis of the causes of insect diversity and of fluctuations in insect abundance. Focus on abiotic, biotic, and evolutionary mechanisms influencing insect populations and communities. prereq: Biol 5041 or EBB 5122 or instr consent

ENT 5051. Scientific Illustration of Insects. (; 3 cr. ; Student Option; Spring Even Year)
Techniques for preparing and observing insects for subsequent illustration. Traditional illustration techniques using the drawing tube and ocular grid on the microscope, including pencil sketching and pen and ink line drawing. Other ?traditional? rendering methods will include line and ink, stippling, cross-hatching, color illustration. Major emphasis will be in computer-assisted techniques of scientific illustration using Adobe Illustrator and Adobe Photoshop, including instruction on preparing full body, true-to-life, color illustrations of insects on the computer.

ENT 5061. Insect Molecular Science. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Molecular genetic techniques and their applications. Emphasizes insect species other than Drosophila. Application of genetic techniques to physiological processes. prereq: [5011, basic genetics course] or instr consent

ENT 5081. Insects, Aquatic Habitats, and Pollution. (; 3 cr. ; A-F or Audit; Every Fall)
Effects of pollutants on biology. Ecology and community structure of aquatic insects. Life-cycle, trophic guilds, community structure in lotic/lentic habitats. Organic pollution/eutrophication, heavy metal pollution, runoff/siltation, acidification, thermal pollution. Changes in aquatic insect community structure according to original literature sources for each class of pollutant. Biological monitoring networks. prereq: [3005, Biol 3407, FW 2001, EEB 4601] or instr consent

ENT 5121. Applied Experimental Design. (; 4 cr. ; Student Option; Periodic Fall)
Principles of sampling methodologies, experimental design, and statistical analyses. Methods/procedures in generating scientific hypotheses. Organizing, initiating, conducting, and analyzing scientific experiments using experimental designs and statistical procedures. Offered with AGRO 5121. prereq: Stat 5021 or equiv or instr consent

ENT 5126. Spatial and Temporal Analysis of Ecological Data. (3 cr. [max 6 cr.] ; A-F or Audit; Spring Even Year)
This course covers linear models (regression and ANOVA) and extensions to temporal data and spatial point processes, lattice/areal data, and geostatistics. The course bridges sufficient theory to understand why contending with spatiotemporal dependence is important with enough application to make students confident in their own data analyses.

ENT 5211. Insect Pest Management. (3 cr. ; Student Option; Every Spring)
Insect Pest Management is designed for graduate students in any major or minor. The course will emphasize principles of insect pest management and draw from examples related to agricultural, horticultural and landscape, and urban systems. Conventional (nonorganic) and organic approaches, the use of social media and modern technology, and economic, environmental, and social consequences of diverse tactics (chemical, cultural, biological, genetic, etc.) will be covered by the instructor and, on occasion, by guest lecturers. Student debates on pesticide-pollinator and genetic engineering issues will provide real-world context and insights on complexities of insect pest prevention and management.

ENT 5275. Insect-transmitted diseases of humans. (3 cr. ; Student Option; Every Spring)
What?s so attractive about human blood? How have human interactions with insects evolved? Insects and ticks transmit viral, bacterial, protozoan and filarial diseases to humans, particularly in tropical countries. Zika, most recently, and also dengue and other mosquito-borne viruses pose an emerging challenge in the southern US as climate change increases the range of important vector species. Lyme disease and other tick-borne diseases are increasing in the US, and pose challenges in diagnosis and treatment. This course covers contemporary topics in "Medical Entomology" that will provide an overview of arthropod-borne disease and its impacts on global health from the perspective of insect vectors and microbial pathogens. Students will explore historical, contemporary and epidemiologic stories demonstrating exposure and control strategies via lecture, student discussions, laboratory demonstrations, and critical review of current best practices in medical entomology. This course is designed

for upper division undergraduate and graduate students in any major or minor.

ENT 5341. Biological Control of Insects and Weeds. (; 3-4 cr. ; Student Option; Periodic Spring)
Biological control of arthropod pests and weeds. Analysis of relevant ecological theory and case studies; biological control agents. Lab includes natural enemy identification, short experiments, and computer exercises. prereq: 3001, Biol 1009, EEB 3001 or grad

ENT 5361. Aquatic Insects. (; 4 cr. ; A-F or Audit; Every Spring)
Taxonomy, natural history of aquatic insects including their importance in aquatic ecology, water resource management, recreation, and conservation. Emphasizes family-level identification of immatures/adults. Field trips scheduled to local aquatic habitats. A collection is required. prereq: instr consent

ENT 5900. Basic Entomology. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
For graduate students who need to make up certain deficiencies in their biological science background. prereq: instr consent

ENT 5910. Special Problems in Entomology. (; 1-6 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Individual field, lab, or library studies in various aspects of entomology. prereq: instr consent

ENT 5920. Special Lectures in Entomology. (; 1-4 cr. [max 12 cr.] ; S-N only; Every Fall & Spring)
Lectures or labs in special fields of entomological research. Given by visiting scholar or regular staff member.

Environment Sci, Policy, Mgmt (ESPM)

ESPM 1001. Freshmen Orientation to Environmental Sciences, Policy, and Management. (; 1 cr. ; A-F or Audit; Every Fall)
Academic planning, ESPM careers, liberal education requirements, internships. Building relationships with other students/faculty, student life, information technology, critical computer skills. New freshmen.

ESPM 1002. Transfer Orientation Seminar. (; 1 cr. ; A-F or Audit; Every Fall & Spring)
This required course provides orientation and guidance in planning for students transferring into the environmental sciences, policy and management (ESPM) major. We will use course activities to enhance your success and sense of community at the University and within the ESPM major while we explore the major, maximizing your time at the University, and preparing you for an environmentally-focused career.

ESPM 1011. Issues in the Environment. (ENV; 3 cr. ; Student Option; Every Fall & Spring)
Interdisciplinary survey of environmental issues. Interrelationships between environment and human society. Roles of science, technology, and policy in meeting environmental challenges. Lecture, discussion. Students evaluate social, ethical, political, and economic factors.

ESPM 1012H. Environmental Science and Society. (ENV; 3 cr. ; A-F only; Every Spring)
Selection of current environmental issues affecting our daily lives. Evaluate the scientific and social approaches necessary to resolve environmental issues. Students explore how everything we do affects the environment in different ways.

ESPM 1202. People, Land, and Water: Systems Under Stress. (HIS; 3 cr. ; A-F only; Every Spring)
Policies/community engagement around water sustainability. Students engage directly with local case on Mississippi River.

ESPM 1425. Introduction to Weather and Climate. (ENV,PHYS; 4 cr. ; Student Option; Every Fall & Spring)
pre-calculus introduction to the nature of the atmosphere and its behavior. Topics covered include atmospheric composition, structure, stability, and motion; precipitation processes, air masses, fronts, cyclones, and anticyclones; general weather patterns; meteorological instruments and observation; weather map analysis; and weather forecasting.

ESPM 2021. Environmental Sciences: Integrated Problem Solving. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Environmental issues facing the world today are increasingly complex. Challenges such as global climate change, air and water quality impairments, land use change for forest and agricultural production, and species conservation require an ability to conceptualize problems broadly so that solutions are crafted in a manner that addresses a multitude of perspectives and considerations. This course will use an interdisciplinary case-study approach to expose students to the most important environmental problems facing society today as well as innovative solutions. The case studies include investigations of ecosystem services, invasive species and pollution remediation, with world experts on these topics leading the discussions. Throughout, a focus on interdisciplinary analysis, including linkages to environmental grand challenges will be emphasized. An interactive approach will be utilized as well, in which students work in groups and engage in class discussions as ways to internalize and conceptualize information. prereq: 1011, ESPM major

ESPM 2401. Environmental Education/ Interpretation. (; 3 cr. ; Student Option; Every Fall)
Foundational view of environmental education/ interpretation, its history, theories, and methodologies. Practical skills for teaching in the outdoors. Educational content, state/ national standards, effective pedagogy for informal learning environments.

ESPM 3000. Seminar on Current Issues for ESPM. (; 1 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Environmental issues students will have to address in their future careers. Small group discussion, in-depth/focused intellectual debate. Topics depend on faculty selection or student interest. prereq: Jr

ESPM 3011W. Ethics in Natural Resources. (WI,CIV; 3 cr. ; Student Option; Every Fall & Spring)
Normative/professional ethics, and leadership considerations, applicable to managing natural resources and the environment. Readings, discussion.

ESPM 3012. Statistical Methods for Environmental Scientists and Managers. (MATH; 4 cr. ; A-F or Audit; Every Spring)
Introduction to statistical principles, foundations, and methods for examining data and drawing conclusions. Regression modeling of relationships in environmental and natural resource science and management problems. prereq: Two yrs of high school math

ESPM 3014. Tribal and Indigenous Natural Resource Management. (3 cr. ; Student Option; Every Fall)
This course is designed to develop and refine your understanding of tribal and Indigenous natural resource management, tribal and Indigenous perspectives, and responsibilities natural resource managers have for tribal and Indigenous communities. This course includes one eight-hour weekend field session.

ESPM 3015. Invasive Plants and Animals: Ecology and Management. (3 cr. ; Student Option; Fall Odd Year)
Overview of invasive plants/animals in North America and around the world. A range of taxa are covered along with their impact and approaches to control. Readings, discussions, and lectures from experts on topics such as invasion theory and real world management.

ESPM 3031. Applied Global Positioning Systems for Geographic Information Systems. (; 3 cr. ; A-F or Audit; Every Spring)
GPS principles, operations, techniques to improve accuracy. Datum, projections, and coordinate systems. Differential correction, accuracy assessments discussed/applied in lab exercises. Code/carrier phase GPS used in exercises. GPS handheld units, PDA based ArcPad/GPS equipment. Transferring field data to/from desktop systems, integrating GPS data with GIS. prereq: Intro GIS course

ESPM 3051. Lands and Humans in World Cultures: the Past and the Present. (GP; 3 cr. ; A-F only; Every Spring)
This course focuses on globally diverse farming and land use practices and associated sustainability issues. By examining diverse land uses issues in different countries in the world, this course seeks to provide global perspective on the US and global land use practices and its sustainability. This course seeks to build interdisciplinary perspectives to better understand the mechanisms and changes in diverse human-nature interactions via land. Class materials will be sourced from multiple disciplines including soil science, ecology, geology, geography, anthropology, and history.

ESPM 3108. Ecology of Managed Systems. (ENV; 3 cr. ; Student Option; Every Fall)
Ecology of ecosystems that are primarily composed of managed plant communities, such as managed forests, field-crop agroecosystems, rangelands and nature reserves, parks, and urban open-spaces. Concepts of ecology and ecosystem management. prereq: BIOL 1001 or BIOL 1009 or HORT 1001 or instr consent

ESPM 3111. Hydrology and Water Quality Field Methods. (3 cr. ; A-F or Audit; Every Spring)
Integrates water quality, surface/groundwater hydrology. Case studies, hands-on field data collection, calculations of hydrological/water quality parameters. Meteorological data, snow hydrology, stream gauging, well monitoring, automatic water samplers. Designing water quality sampling program. Geomorphology, interception, infiltration.

ESPM 3131. Environmental Physics. (; 3 cr. ; A-F or Audit; Every Spring)
Concepts and principles of classic and modern physics applied to environmental problems arising from interaction between humans and the natural environment. Forms of pollution (e.g., land, water, air). Transport mechanisms. Anthropogenic greenhouse gas emissions. Global climate change. Social issues related to environmental problems. prereq: Phys 1101

ESPM 3202W. Environmental Conflict Management, Leadership, and Planning. (WI; 3 cr. ; A-F or Audit; Every Spring)
Negotiation of natural resource management issues. Use of collaborative planning. Case study approach to conflict management, strategic planning, and building leadership qualities. Emphasizes analytical concepts, techniques, and skills.

ESPM 3211. Survey, Measurement, and Modeling for Environmental Analysis. (3 cr. ; Student Option; Every Spring)
Survey, measurement, modeling concepts/ methods for study of natural resources/ environmental issues. Emphasizes survey design for data collection, estimation. Analysis for issues encompassing land, water, air, vegetation, animal, soil, human/social variables. prereq: [MATH 1031 or MATH 1051], [3012 or FW 4001 or STAT 3011 or SOC 3811], computer competency

ESPM 3221. Soil Conservation and Land-Use Management. (; 3 cr. ; Student Option; Every Spring)
This course is designed to provide a local and global historical perspective of soil erosion (causes and consequences); develop a scientific understanding of soil erosion processes; and relates various soil conservation and land-use management strategies to real-world situations. Basics of soil erosion processes and prediction methods will be the fundamental building blocks of this course. From this understanding, we will discuss policies and socioeconomic aspects of soil erosion. Lastly, we will focus on effective land-use management using natural resource assessment tools. Case studies and real-world and current events examples will be used throughout the course to relate course material to experiences. prereq: SOIL 2125 or instr consent

ESPM 3241W. Natural Resource and Environmental Policy. (CIV,WI,SOCS; 3 cr. ; Student Option; Every Spring)
Political processes in management of the environment. How disagreements are addressed by different stakeholders, private-sector interests, government agencies, institutions, communities, and nonprofit organizations.

ESPM 3245. Sustainable Land Use Planning and Policy. (ENV; 3 cr. ; A-F or Audit; Every Fall)
Policies affecting land use planning at local, state, and federal levels. Ecosystem and landscape scale planning. Collaborative and community-based approaches to planning for ecological, social, and economic sustainability. Class project applies interdisciplinary perspectives on planning and policy, including information gathering techniques, conservation planning tools, and evaluation of planning options.

ESPM 3251. Natural Resources in Sustainable International Development. (GP; 3 cr. ; A-F or Audit; Every Fall)
International perspectives on resource use and sustainable development. Integration of natural resource issues with social, economic, and policy considerations. Agriculture, forestry, agroforestry, non-timber forest products, water resources, certification, development issues. Global case studies. Impact of consumption in developed countries on sustainable development in lesser developed countries.

ESPM 3261. Economics and Natural Resources Management. (ENV,SOCS; 4 cr. ; A-F or Audit; Every Spring)
Microeconomic principles, their application to natural resource management problems. Tools to address market failure, project analysis. Economic/financial considerations. Benefit/cost analysis. Valuation/assessment methods for property/market/non-market benefits. Planning/ management problems. Managing renewable natural resources. Case studies. prereq: MATH 1031 or MATH 1051 or MATH 1142 or MATH 1155 or MATH 1271 or ESPM 3012 or STAT 3011 or Soc 3811 or equiv

ESPM 3271. Environmental Policy, Law, and Human Behavior. (CIV,SOCS; 3 cr. ; A-F or Audit; Every Fall)
What is necessary to achieve sustainable societies. What influences societal deliberation/ decisions about environmental issues. How our behaviors affect natural systems. Key theoretical concepts of environmental social psychology and political science. How people respond to policies, using theoretical concepts from social psychology about attitudes, values, and social norms; applying these ideas to specific environmental problems and ethical debates.

ESPM 3425. Atmospheric Pollution: From Smog to Climate Change. (3 cr. ; A-F only; Periodic Fall)
Processes governing chemical makeup of Earth's atmosphere. Implications for air pollution, climate, human welfare. Evolution of atmosphere. Atmospheric structure/transport. Biogeochemical cycles of carbon, nitrogen, oxygen, mercury. Greenhouse effect. Aerosols. Stratospheric ozone loss. prereq: [CHEM 1061, PHYS 1101W, MATH 1142 or 1271] or equiv or instr consent

ESPM 3480. Topics in Natural Resources. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Lectures by visiting scholar or regular staff member. Topics specified in Class Schedule.

ESPM 3575. Wetlands. (; 3 cr. ; Student Option; Every Spring)
Freshwater wetland classification, wetland biota, current/historic status of wetlands, value of wetlands. National, regional, Minnesota wetlands conservation strategies, ecological principles used in wetland management.

ESPM 3601. Sustainable Housing--Community, Environment, and Technology. (TS; 3 cr. ; A-F or Audit; Every Fall & Spring)
How sustainable housing practices build community. How community growth has impacted the environment and how natural events impact our communities. Science and technology required to build high performance houses.

ESPM 3602. Regulations and Corporate Environmental Management. (; 3 cr. ; A-F only; Every Spring)
Concepts/issues relating to industrial ecology and industry as they are influenced by current standards/regulations at local, state, and national levels. prereq: APEC 1101 or ECON 1101 or 3261W

ESPM 3603. Environmental Life Cycle Analysis. (; 3 cr. ; A-F only; Every Fall)
Concepts/issues relating to inventory, subsequent analysis of production systems. Production system from holistic point of view, using term commonly used in industrial ecology: "metabolic system."

ESPM 3604. Environmental Management Systems and Strategy. (; 3 cr. ; A-F only; Every Fall)
Environmental problems such as climate change, ozone depletion, and loss of biodiversity.

ESPM 3605. Recycling: Extending Raw Materials. (TS; 3 cr. ; A-F only; Every Spring)
Basic principles of recycling and its role in raw materials utilization, energy, and the environment. Recycling processes for commonly recycled materials, products, and their properties and environmental implications of recycling.

ESPM 3607. Natural Resources Consumption and Sustainability. (GP; 3 cr. ; A-F only; Every Spring)
Current world trends for industrial raw materials; environmental/other tradeoffs related to options for satisfying demand/needs; global and systemic thinking; provides a framework for beginning a process of thinking critically

about complex environmental problems/ potential solutions in a diverse global economy.

ESPM 3612W. Soil and Environmental Biology. (WI; 4 cr. ; Student Option; Every Fall)
Properties of microorganisms that impact soil fertility, structure, and quality. Nutrient requirements of microbes and plants and mineral transformations in biogeochemical cycling. Symbiotic plant/microbe associations and their role in sustainable agricultural production. Biodegradation of pollutants and bioremediation approaches. prereq: Biol 1009 or equiv, Chem 1021 or equiv; SOIL 2125 recommended

ESPM 3777. Climate Change- Physics, Myths, Mysteries, and Uncertainties. (3 cr. ; A-F only; Every Spring)
Climate variations are the norm; not the exception. The geological and archaeological records are rich with evidence of a climate system that is dynamic and non-steady state. Yet we face the challenges of understanding the complexities of this system in order to manage our natural resources and to prepare wisely for the future. This class examines the basic theory and Physics behind the atmospheric greenhouse effect and radiative forcings in the climate system. The Myths, Mysteries, and Uncertainties about the climate record and feedback processes operating in the Earth-Atmosphere system will be examined. Simple models will be used to demonstrate the atmospheric greenhouse effect. Sophisticated numerical weather models, such as the Regional Weather and Forecast Chemistry (WRF-CHEM) model, will be used to demonstrate climate predictions and biophysical feedback processes. We will also study some of the classic Warming Papers that provide the physical scientific basis for the anthropogenic greenhouse effect. Finally, we will explore the uncertainties related to climate predictions and how scientists use fingerprint techniques to diagnose natural versus anthropogenic climate signals. There is no prerequisite required for this course, but first year calculus and one other first year science course is recommended.

ESPM 3921. Science and Critical Thinking for Understanding Our World. (CIV; 3 cr. ; A-F only; Every Fall)
Today more than ever we must deal with multiple sources of conflicting information on topics that affect our lives in big ways. We use this information to make important decisions, from major policy decisions to personal lifestyle choices. Understanding complex, high-stakes societal issues such as the global COVID-19 pandemic requires that we rapidly process and synthesize new science that is changing fast, and that we do so in an environment of partisan bias and media spin that make it extremely difficult for citizens to stay informed and make good decisions. The debate surrounding the response to COVID-19, climate change, water policy, and other planetary and human health issues, invoke moral or ethical principles in addition to scientific arguments. As a result, problem solving and decision making requires simultaneously evaluating complex scientific and ethical arguments. Several aspects of human psychology mean that we do not reliably make logical choices when presented with complex information. Furthermore, data and science are frequently used to mislead, from the na?ve misuse of statistics to deliberate misinformation campaigns. As a result, weighing evidence and rational decision-making for complex issues requires skepticism, critical thinking, and lots of practice. In this course, students will develop critical thinking tools and cultivate scientific skepticism for evaluating claims encountered in peer-reviewed scientific papers, popular press articles, or on social media. Examples and case studies will draw heavily on current events surrounding the COVID-19 pandemic and associated societal and environmental responses, but will also include other environmental, health, and public policy issues to demonstrate the range of ways in which data and science can be used or misused to support a position. To create the necessary habits of mind for skepticism and critical thinking, this course will cover background material from ethics, neurology, behavioral economics, statistics, and logic. We will employ a number of active learning strategies, and class meetings will frequently consist of students actively engaged in processing and understanding course content. Upon leaving this course students will be able to confidently evaluate the veracity of information as they encounter it in multiple contexts throughout their lives. Students will understand how views of the role of ethics in scientific inquiry have evolved, and the roles of science, uncertainty, and ethics in determining public opinion and policy decisions on environmental topics. Students will learn to identify and recognize misinformation in its various forms and to articulate why a particular piece of information is misleading. We will explore the various ways that our intuition and memory make interpreting data and statistics challenging, and develop tools and habits of mind to overcome these challenges.

ESPM 3993. Directed Study. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: Department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements

ESPM 3994. Directed Research. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: Department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

ESPM 4021W. Problem Solving: Environmental Review. (WI; 4 cr. ; Student Option; Every Spring)
Roles of governmental agencies, consultants, and private citizens in EIS process. Students read EIS/EAW, analyze their content/scope, and prepare an EAW and EIS according to Minnesota EQB guidelines. prereq: ESPM 2021 and jr or sr

ESPM 4041W. Problem Solving for Environmental Change. (WI; 4 cr. ; A-F or Audit; Every Fall)
Capstone course. Students working with a team on a real world project related to selected track, gather/analyze data relevant to client's objectives, and make recommendations for future use. Students produce a final written report and formal presentation, and present findings to client group.

ESPM 4061W. Water Quality and Natural Resources. (ENV,WI; 3 cr. ; Student Option; Every Fall)
Water quality decision making. International focus. Ecology of aquatic ecosystems, how they are valuable to society and changed by landscape management. Case studies, impaired waters, TMDL process, student engagement in simulating water quality decision making.

ESPM 4096. Professional Experience Program: Internship. (; 1 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Students create oral/written report based on paid or volunteered work or field experience. prereq: CFANS undergrad, instr consent, completed internship contract

ESPM 4216. Contaminant Hydrology. (3 cr. ; A-F or Audit; Every Fall)
Principles of contaminant transport in percolate solution and in overland flow. Hydrologic cycle, percolation/runoff processes, contaminant transport, leachate sampling methods, remediation technologies, scale effects on runoff water quality, tillage technologies, control of sediment/chemical losses. Discussions mostly descriptive, but involve some computations.

ESPM 4242. Methods for Environmental and Natural Resource Policy Analysis. (; 3 cr. ; A-F only; Fall Even Year)
Methods, formal/informal, for analyzing environmental/natural resource policies. How to critically evaluate policies, using economic/non-economic decision-making criteria. Application of policy analysis to environmental/natural resource problems. Recognizing politically-charged environment in which decisions over use, management, and protection of resources often occur. Prereqs: ESPM 3241W or ESPM 3271 and ESPM 3261, undergrads with jr or sr standing.

ESPM 4256. Natural Resource Law and the Management of Public Lands and Waters. (; 3 cr. ; A-F or Audit; Spring Odd Year)
This course is intended to provide non-law students with an understanding of the role of the judiciary in the management of public lands and public waters. The course will examine Constitutional provisions affecting the management of public resources, the concept of property rights, major principles of water law, the role of the legal system in environmental review, the scope of legal authority granted to administrative agencies, and limitations of private property rights to protect public lands and public waters. The class will introduce students to the concepts of legal reasoning including case synthesis and analysis. The class will be taught using a combination of lecture, guest lectures, written exercises and class participation. Recommended prereq: 3241W or instructor consent

ESPM 4295W. GIS in Environmental Science and Management. (WI; 4 cr. ; A-F or Audit; Every Fall)
Application of geographic information science and technologies (GIS) in complex environmental problems. Students gain experience in spatial data collection, database development, and spatial analysis, including GNSS and field attribute collection, image interpretation, and existing data fusion, raster/vector data integration and analysis, information extraction from LiDAR data, DEM conditioning and hydrologic analysis, neighborhood analysis, bulk processing and automation, and scripting. Problems vary depending on topics, often with extra-University partners. prereq: FNRM 3131 or Geog 3561 or instr consent

ESPM 4601. Environmental Pollution. (; 3 cr. ; Student Option; Every Spring)
This course uses the principles of chemistry, microbiology, physics, and toxicology to understand the fate and behavior of environmental contaminants and the pollution of soils, surface waters, groundwater, and sediments. The course is structured around a semester-long risk assessment project that provides a framework for integrating concepts of pollution, contaminant movement, contaminant degradation, human health risk, ecological risk, risk mitigation, environmental remediation processes, and interactions among them. The history of federal regulations concerning environmental contamination is presented in the context of the major episodes of environmental pollution that motivated legislative action. prereq: SOIL 2125, CHEM 1061 and 1062 or equiv, or permission

ESPM 4607. Industrial Biotechnology and the Environment. (; 3 cr. ; A-F only; Every Spring)
Biotechnology pertaining to biobased products development, their environmental impact. prereq: BIOL 1009, CHEM 1021

ESPM 4811. Environmental Interpretation. (; 3 cr. ; A-F or Audit; Every Spring)
Theories of interpretation. Nonformal teaching pedagogy. Interpretive talks, walks, and programs. Camp leadership, oral presentation. Newsletter development, Website design. Development of self-guided trail guides, brochures, and exhibits. Planning, evaluation. Interpretive work in private, state, or federal agencies. First-hand experience.

ESPM 5014. Tribal and Indigenous Natural Resource Management. (3 cr. ; Student Option; Every Fall)
This course is designed to develop and refine your understanding of tribal and Indigenous natural resource management, tribal and Indigenous perspectives, and responsibilities natural resource managers have for tribal and Indigenous communities. This course includes one eight-hour weekend field session.

ESPM 5015. Invasive Plants and Animals: Ecology and Management. (3 cr. ; Student Option; Fall Odd Year)
Overview of invasive plants/animals in North America and around the world. A range of taxa are covered along with their impact and approaches to control. Readings, discussions, and lectures from experts on topics such as invasion theory and real-world management.

ESPM 5031. Applied Global Positioning Systems for Geographic Information Systems. (; 3 cr. ; A-F or Audit; Every Spring)
GPS principles, operations, techniques to improve accuracy. Datum, projections, and coordinate systems. Differential correction, accuracy assessments discussed/applied in lab exercises. Code/carrier phase GPS used in exercises. GPS handheld units, PDA based ArcPad/GPS equipment. Transferring field data to/from desktop systems, integrating GPS data with GIS. prereq: Grad student or instr consent

ESPM 5061. Water Quality and Natural Resources. (; 3 cr. ; Student Option; Every Fall & Spring)
Recent literature in field. Complements 4061. Ecology of aquatic ecosystems, how they are valuable to society and changed by landscape management. Case studies, impaired waters, TMDL process, student engagement in simulating water quality decision making.

ESPM 5071. Ecological Restoration. (; 4 cr. ; Student Option; Every Fall)
Ecological/physiological concepts for revegetation of grasslands, wetlands, forests, and landscapes. Plant selection, stand establishment/evaluation. State/federal programs that administer restoration/reclamation. Field trips. prereq: [One college course in ecology, one college course in [plant science or botany]] or instr consent

ESPM 5108. Ecology of Managed Systems. (; 4 cr. ; A-F or Audit; Every Fall)
Analysis of functioning of ecosystems primarily structured by managed plant communities. Managed forests, field-crop agroecosystems, rangelands, aquatic systems. Structure-function relations. Roles of biodiversity in productivity, resource-use efficiency, nutrient cycling, resilience. Emerging principles for design of sustainable managed ecosystems, provision of ecological services. prereq: Sr or grad student

ESPM 5111. Hydrology and Water Quality Field Methods. (3 cr. ; A-F or Audit; Every Spring)
Integrates water quality, surface/groundwater hydrology. Case studies, hands-on field data collection, calculations of hydrological/water quality parameters. Meteorological data, snow hydrology, stream gauging, well monitoring, automatic water samplers. Designing water quality sampling program. Geomorphology, interception, infiltration. prereq: Grad student or instr consent

ESPM 5202. Environmental Conflict Management, Leadership, and Planning. (; 3 cr. ; A-F or Audit; Every Spring)
Negotiation of natural resource management issues. Use of collaborative planning. Case study approach to conflict management, strategic planning, and building leadership qualities. Emphasizes analytical concepts, techniques, and skills.

ESPM 5211. Survey, Measurement, and Modeling for Environmental Analysis. (; 3 cr. ; Student Option; Every Spring)
Introduction to survey, measurement, and modeling concepts/methods for study of natural resources and environmental issues. Emphasizes survey design for data collection, estimation, and analysis for issues encompassing land, water, air, vegetation, animal, soil, and human/social variables.

ESPM 5241. Natural Resource and Environmental Policy. (; 3 cr. ; Student Option; Every Spring)
Political processes at play in management of environment and how disagreements are addressed by different stakeholders, private-sector interests, government agencies and institutions, communities, and nonprofit organizations. prereq: Grad student or instr consent

ESPM 5242. Methods for Environmental and Natural Resource Policy Analysis. (; 3 cr. ; A-F only; Fall Even Year)
Methods, formal and informal, for analyzing environmental and natural resource policies. How to critically evaluate policies, using economic and non-economic decision-making criteria. Application of policy analysis principles/concepts to environmental/natural resource problems. Recognizing politically-charged environment in which decisions over use, management, and protection of these resources often occur. prereq: grad student

ESPM 5245. Sustainable Land Use Planning and Policy. (; 3 cr. ; A-F or Audit; Every Fall)
Planning theories, concepts, and constructs. Policies, processes, and tools for sustainable land use planning. Scientific/technical literature related to land use planning. Skills needed to participate in sustainable land use planning.

ESPM 5251. Natural Resources in Sustainable International Development. (; 3 cr. ; A-F or Audit; Every Fall)
International perspectives on resource use in developing countries. Integration of natural resource issues with social, economic, and policy considerations. Agriculture, forestry, agroforestry, non-timber forest products, water resources, certification, development issues. Latin American case studies. prereq: Grad student or instr consent

ESPM 5256. Natural Resource Law and the Management of Public Lands and Waters. (; 3 cr. ; A-F or Audit; Spring Odd Year)
This course is intended to provide non-law students with an understanding of the role of the judiciary in the management of public lands and public waters. The course will examine Constitutional provisions affecting the management of public resources, the concept of property rights, major principles of water law, the role of the legal system in environmental review, the scope of legal authority granted to administrative agencies, and limitations of private property rights to protect public lands and public waters. The class will introduce students to the concepts of legal reasoning including case synthesis and analysis. The class will be taught using a combination of lecture, guest lectures, written exercises and class participation. prereq: grad student

ESPM 5261. Economics and Natural Resources Management. (4 cr. ; A-F or Audit; Every Spring)
Microeconomic principles in natural resource management. Tools to address market failure, project analysis, and evaluation. Economic/financial considerations. Benefit/cost analysis methods/examples. Valuation/assessment methods for property/resources. Managing renewable natural resources.

ESPM 5295. GIS in Environmental Science and Management. (4 cr. ; A-F or Audit; Every Fall)
Application of geographic information science and technologies (GIS) in complex environmental problems. Students gain experience in spatial data collection, database development, and spatial analysis, including GNSS and field attribute collection, image interpretation, and existing data fusion, raster/vector data integration and analysis, information extraction from LiDAR data, DEM conditioning and hydrologic analysis, neighborhood analysis, bulk processing and automation, and scripting. Problems vary depending on topics, often with extra-University partners. *Please note that students should have completed a semester-long, introductory lab/lecture GIS course at the graduate or undergraduate level before enrolling in this course, e.g., FNRM 5131. We do not require any given course because students come from varied universities and backgrounds. That said, we assume a knowledge commensurate with a comprehensive introductory course. Students seeking a first course are directed to FNRM 5131. If you have questions regarding your capabilities, please contact the instructor prior to enrolling.

ESPM 5402. Biometeorology. (; 3 cr. ; Student Option; Fall Even Year)
This course examines the interactions between the atmosphere and the Earth?s surface. We will discuss the principles of the surface energy and radiation balance, air motion in the atmospheric boundary layer, land surface parameterization for climate models, boundary layer budgets, and field research methods. The course aims to achieve exemplary learning through hands-on activities and examining recent field studies conducted in natural and managed ecosystems. prereq: MATH 1271, PHYS 1201, STAT 3011, [instr consent]

ESPM 5480. Topics in Natural Resources. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Lectures by visiting scholar or regular staff member. Topics specified in class schedule.

ESPM 5555. Wetland Soils. (; 3 cr. ; A-F or Audit; Every Fall)
Morphology, chemistry, hydrology, formation of mineral/organic soils in wet environments. Soil morphological indicators of wet conditions, field techniques of identifying hydric soils for wetland delineations. Peatlands. Wetland benefits, preservation, regulation, mitigation. Field trips, lab, field hydric soil delineation project. prereq: SOIL 1125 or 2125 or equiv or instr consent; concurrent registration is required (or allowed) in SOIL 4511 recommended

ESPM 5575. Wetlands. (; 3 cr. ; Student Option; Every Spring)
Freshwater wetland classification, wetland biota, current/historic status of wetlands, value of wetlands. National, regional, Minnesota wetlands conservation strategies. Ecological principles used in wetland management. prereq: 3575, [sr or grad student or instr consent]

ESPM 5601. Principles of Waste Management. (; 3 cr. ; A-F or Audit; Every Spring)
Waste and waste management principles. Issues, problems, and solutions in remedying waste stream. MSW and yard waste composting, WTE incineration operation, ash disposal, recycling, land fill requirements, direct land disposal, regulatory trends, and case studies. prereq: 1125 or 2125, Biol 1002/1009 or Chem 1021, Stat 3011, ApEc 1101 or instr consent

ESPM 5602. Regulations and Corporate Environmental Management. (; 3 cr. ; A-F only; Every Spring)
Concepts, major issues relating to industrial ecology and industry as they are influenced by current standards/regulations at local, state, and national levels. prereq: APEC 1101 or ECON 1101

ESPM 5603. Environmental Life Cycle Analysis. (; 3 cr. ; A-F only; Every Fall)
Concepts, major issues relating to inventory and subsequent analysis of production systems. Production system from holistic point of view, using term commonly used in industrial ecology: "the metabolic system." prereq: [Math 1142 or [Math 1271, Math 1282]], [Econ 1101 or ApEc 1101]

ESPM 5604. Environmental Management Systems and Strategy. (; 3 cr. ; A-F only; Every Fall)
Environmental problems such as climate change, ozone depletion, and loss of biodiversity.

ESPM 5605. Recycling: Extending Raw Materials Supplies. (; 3 cr. ; A-F only; Every Spring)
Principles of recycling. Role of recycling in raw materials utilization, energy, and the environment. Recycling processes for number of commonly recycled materials/products. Properties, environmental implications of recycling.

ESPM 5607. Industrial Biotechnology and the Environment. (; 3 cr. ; A-F only; Every Spring)
Biotechnology pertaining to biobased products development and their environmental impact. prereq: BIOL 1009, CHEM 1021

ESPM 5811. Environmental Interpretation. (; 3 cr. ; A-F or Audit; Every Spring)
Theories of interpretation, nonformal teaching pedagogy. Interpretive talks, walks, and programs. Camp leadership. Oral presentation. Newsletter development. Website design. Development of self-guided trail guides, brochures, and exhibits. Planning, evaluation. Interpretive work in private, state, or federal agencies. Hands-on experience.

Experimental and Clinical Phar (ECP)

ECP 5220. Regulatory Issues in Drug Research. (2 cr. ; Student Option; Every Fall)
Regulatory issues encountered in conducting drug research trials. Performing different aspects of clinical trials. Lectures, readings, small group discussions, homework assignments. prereq: ECP grad student or Pharm.D. professional student or instr consent

ECP 5290. Clinical Clerkship. (1-8 cr. [max 16 cr.] ; Student Option; Every Fall)
Supervised study of pharmaceutical services at University of Minnesota Medical Center, Fairview or affiliated institutions. prereq: Grad experimental and clinical pharmacology

ECP 5620. Drug Metabolism and Disposition. (3 cr. ; A-F or Audit; Spring Odd Year)
Oxidatative/conjugative enzymes systems involved in human drug metabolism/disposition. Various in vitro models used to evaluate drug metabolism or chemical entity, pros/cons of each. Factors involved in conducting in vivo studies. Components used to predict in vivo drug disposition from in vivo studies. prereq: Grad student or instr consent

ECP 5982. Inter-Institutional Journal Club in Translational Research. (1 cr. [max 2 cr.] ; Student Option; Every Fall)
This course is structured as an inter-institutional journal club between universities of Minnesota, Pittsburgh, and Kentucky that is focused on translational research in clinical pharmacology. Articles will be discussed on topics such as precision medicine, pharmacokinetics, pharmacometrics, pharmacogenomics, and clinical biomarkers.

ECP 5983. Scientific Communications in Experimental and Clinical Pharmacology. (1 cr. ; Student Option; Spring Odd Year)
Introduction of professional development concepts in written and oral scientific communication through lectures, literature readings, and class participation.

ECP 5984. Scientific Communications in Experimental and Clinical Pharmacology II. (1 cr. ; Student Option; Spring Even Year)
Dissemination of advanced professional development concepts in written and oral scientific communication through lectures, literature readings, and class participation.

ECP 5993. Directed Study in Experimental and Clinical Pharmacology. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Student working with faculty member designs a directed study course, including a complete syllabus, appropriate time commitment, and workload for number of credits.

ECP 5994. Directed Research in Experimental and Clinical Pharmacology. (; 1-4 cr. ; Student Option; Every Fall & Spring)
Student works with faculty adviser to design a scientific research project.

Family Med & Community Health (FMCH)

FMCH 5345. Curriculum Design and Teaching Strategies for Medical Education I. (; 3 cr. ; A-F or Audit; Every Spring)
Identifying/developing course goals. Developing course, teacher, learner evaluations. Students must also take 5346, which follows immediately after 5345. prereq: concurrent entollment in 5346, instr consent

FMCH 5346. Curriculum Design and Teaching Strategies for Medical Education II. (; 1 cr. ; A-F or Audit; Summer Even Year)
Taken with 5345. Practicum of lecture, demonstration, small-group discussion, clinical teaching, and computer-assisted instruction. Academic ethics, policies, copyright issues, tenure, academic freedom, problem-based learning. prereq: concurrent registration is required (or allowed) in 5345, instr consent

FMCH 5564. Family Practice Seminar. (; 1 cr. [max 9 cr.] ; O-N or Audit; Every Fall & Spring)
Knowledge, skills, and attitudes in biomedical and behavioral sciences that form foundation for academic discipline of family medicine; medical decision making, common problems and procedures, family theory and assessment, clinical pharmacy, human sexuality. prereq: MD or DO degree

FMCH 5651. Principles of Geriatrics II. (; 1 cr. [max 5 cr.] ; P-N or Audit; Periodic Fall)
Second in two-course sequence. Survey of major topics in geriatric medicine. Epidemiology, etiology, diagnosis, and treatment of major geriatric syndromes and illnesses. prereq: Medical School or dental school or GNP school graduate

FMCH 5950. Clinical Issues in Human Sexuality. (; 2 cr. ; O-N or Audit; Every Fall & Spring)
Assessment and treatment techniques pertaining to common sexual problems. prereq: Enrollment in health sci grad programs in CSPP, Psy, PubH, SW or FSoS or instr consent

FMCH 5955. Directed Study. (; 1-10 cr. ; O-N or Audit; Every Fall, Spring & Summer)
Studies on special topics as arranged between student and faculty. prereq: instr consent; qualified students may arrange for work on a tutorial basis

Family Social Science (FSOS)

FSOS 1101. Intimate Relationships. (SOCS; 4 cr. ; Student Option; Every Fall & Spring)
Couple dynamics. Overview of how to develop, maintain, and terminate an intimate relationship. Communication, conflict resolution, power, roles. Programs for marriage preparation, marriage enrichment, and marital therapy.

FSOS 1201. Human Development in Families: Lifespan. (DSJ,SOCS; 4 cr. ; Student Option; Every Spring)
Human development in a family context. Life-course and human development theories. Individual/family development, mate selection, birth, life cycle. Physical, cognitive, language, social, social, and personality development. Historical, social, and cultural factors. How theory/research are applied to everyday lives.

FSOS 1211. An Interdisciplinary Look at the Family in Multicultural America. (SOCS,DSJ; 4 cr. ; A-F or Audit; Every Fall & Spring)
This course is designed as an introduction to multicultural families using an ecological lens. The institution of the family is recognized globally as a basic unit of a society that produces, develops, socializes, and launches the next generation of its citizenry. This course will focus on families in contemporary America, a society that has grown increasingly diverse, and faces many complex challenges in today?s global environment. Using a human ecological lens allows us to examine families in their nested and interdependent environments--how individuals shape and are shaped by families, their human built environments, their socio-cultural environments, and their natural-physical environments. This is a service learning class.

FSOS 1301. Cash or Credit: You Need to Know. (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Factual information about basic money management skills. Topics covered can be applied to everyday life. Online, interactive learning based class.

FSOS 1461. Presentations at Work: Families, Communities, Nonprofits, and Schools. (CIV; 3 cr. ; A-F or Audit; Every Fall & Spring)
This course prepares students to present information and adjust their messages based on audience need in a variety of future work contexts. Students interested in majoring in Family Social Science, Education, Youth Studies, and Kinesiology will take this course in order to develop the disciplinary practices used in counseling, community-based organizations, education, and health sciences to convey important, and often sensitive, material to specific audiences.

FSOS 2101. Preparation for Working With Families. (3 cr. ; A-F or Audit; Every Fall & Spring)
Systematic preparation for upper division education, research/field internships, and career possibilities in Family Social Science.

FSOS 2103. Family Policy. (3 cr. ; Student Option; Every Fall & Spring)
Connections between policies that governments enact, and families and their well-being. Conceptual frameworks for influences underlying policy choices. Evaluating consequences of such choices for diverse families.

FSOS 2105. Methods in Family Research. (3 cr. ; Student Option; Every Fall & Spring)
Scientific method. Major questions/objectives of family research. Data collection/analysis/reporting. Social context of family research. prereq: STAT 3011 or PSTL 1004 or STAT 1001 or ESPY 3264 or ESPY 1261 or SOC 3811 or SOC 2550 or PSY 3801 or instr consent

FSOS 2106. Family Resource Management. (3 cr. ; Student Option; Every Fall & Spring)
Analysis of how individuals/families use interpersonal, economic, natural, and community resources to make decisions, solve problems, and achieve central life purposes.

FSOS 2107. Preparation for Family and Community Engagement. (3 cr. ; Student Option; Every Fall & Spring)
This course will focus on preparing students to work with families in a community context. Central themes of the course include strategies for family and community engagement, understanding how families interact with community organizations and institutions, how to mobilize family and community assets, and collaborating with families to create systems change and build positive community resources. The course will pose questions for students about the roles of family professionals in supporting families in community contexts. The course will utilize readings about best practices in family and community engagement, both from the family studies literature and from cutting edge community-based organizations. Students will participate in a community project with a community organization that focuses on supporting families. This will enable them to attend community meetings, shadow family/community liaisons, and better understand the interface between families, community organizations, and institutions. Class assignments will allow students to engage in reflective practice and pull learning from their community-based experiences. They will learn concrete skills like meeting facilitation through a workshop format.

FSOS 2108. Preparation for Family Financial Studies: Money Matters in Families. (3 cr. ; Student Option; Every Fall)
The goal of this course is to help students understand the role that money plays in the health and well-being of individuals, couples and families across differing social contexts over the life course. The course will teach

student how values about money develop within families and society; how these values influence the choices made by families; and the impact of these choices on the quality of couple and family relationships. The course will introduce students to a variety of career paths related to families and money including financial coach, counselor and educator.

FSOS 2191. Independent Study in Family Social Science. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent reading or writing or research under faculty supervision. prereq: Soph, instr consent

FSOS 3101. Personal and Family Finances. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Analysis of personal/family financial management principles. Financial planning of savings, investments, credit, mortgages, and taxation. Life, disability, health, and property insurance. Public/private pensions. Estate planning. prereq: FSOS 4106 is a recommended prerequisite for this course.

FSOS 3102. Family Systems and Diversity. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Family systems/theories applied to dynamics/ processes relevant to family life. Diversity issues related to gender, ethnicity, sexual orientation, and disability. Divorce, single parenthood, remarriage. Family strengths/ problems. prereq: At least soph or instr consent

FSOS 3105. Technology in Parenting and Family Relationships. (TS; 3 cr. ; Student Option; Every Fall)
The role of information and communications technologies in contemporary family life is explored through examination of theory, and research on technology use and family and family member outcomes. Applications of technology in family practice and issues regarding professional preparation will identify avenues for support and development.

FSOS 3191. Independent Study in Family Social Science. (; 1-5 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent reading or writing or research under faculty supervision. prereq: Jr, instr consent

FSOS 3222W. Our Addicted World: Going Beyond the Individual in Looking at the Addiction. (WI; 3 cr. ; A-F only; Every Spring)
This course will explore addiction and how we, as members of a family and community can better understand the complexity of the systems that simultaneously create environments that foster addiction and assist individuals in their quest to heal from addiction. We will explore our personal beliefs and experiences with addiction, often challenging the dominant discourses that inform who gets blamed and who gets helped when dealing with addiction. We will do this by reading, discussing and writing about three different types of addiction that are currently being discussed by families, communities and policymakers: opiate addiction, screen addiction and gambling.

FSOS 3426. Alcohol and Drugs: Families and Culture. (3 cr. ; Student Option; Every Fall & Spring)
Psychology/sociology of drug use/abuse. Life-span, epidemiological, familial, cultural data regarding use. Fundamentals of licit/illicit drug use behavior. Variables of gender, ethnicity, social class, sexuality, sexual orientation, disability.

FSOS 3429. Counseling Skills Practicum I. (3 cr. ; Student Option; Every Fall & Spring)
Basic counseling skills. Counselor needs/ motivations, non-verbal communication, basic/ advanced empathy, identifying strengths, maintaining focus, challenging discrepancies, use of self. Emphasizes building from client strengths, learning through role-playing.

FSOS 3431. Counseling Skills Practicum II. (; 3 cr. ; Student Option; Every Spring)
Advanced therapeutic methods. Processes of change. Identifying, reinforcing, challenging core beliefs. Reframing. Paradox. Trance, guided imagery. Cognitive-behavioral, solution-focused, narrative therapies. Emphasizes non-pathologizing models of therapy.

FSOS 4101. Sexuality and Gender in Families and Close Relationships. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Human ecology/development as frameworks for examining sexuality in close relationships. Diversity of sexual beliefs, attitudes, behaviors within differing social contexts. Using scientific knowledge to promote sexual health among individuals, couples, families through various life stages. prereq: At least jr or instr consent

FSOS 4104. Family Psychology. (3 cr. ; Student Option; Every Fall & Spring)
Processes in families of origin, families of choice, and other close relationships, within diverse social contexts. Evaluating current research on family dynamics within/across generations.

FSOS 4107. Traumatic Stress and Resilience in Vulnerable Families Across the Lifespan. (3 cr. ; Student Option; Periodic Fall & Spring)
This course will focus on stress contexts that place families at risk across the life span such as poverty, war/civil conflict, disability, social disparities/discrimination, and family dissolution. An examination of family strengths, cultural diversity, and approaches for working with families across the life course in community based settings including classrooms, programs, and agencies will be emphasized. This course focuses on vulnerable families and those affected by historical and traumatic stress. It covers family members of all ages who face particular challenges, such as intergenerational exposure to traumatic events, persistent and structural inequality, and health disparities. This course is designed to increase awareness of the conditions that place families and children at risk, the theories and frameworks available to understand these risks, and both individual and family resiliency to these conditions. The course will primarily focus on a) individual, family, community, and developmental contexts of risk and resiliency, and b) family-level preventive and intervention frameworks and approaches to support individuals and families.

FSOS 4108. Understanding and Working with Immigrants and Refugee Families. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall & Spring)
This course focuses on the impact of ? immigration? (i.e., refugee vs. various types of immigration statuses) on family relationships, specifically how culture of origin and acculturation processes influence individuals and families over time; explores issues faced by various immigrant family systems, including a consideration of generational status, gender identities, social classes, and ethnic/ racial group identities; develops intercultural interaction skills that prepare students to effectively engage with diverse immigrant families in multiple contexts; and builds practical skills that enhance students? abilities to work in and collaborate with community- and faith-based organizations to strengthen cultural resources while overcoming barriers to increase service utilization.

FSOS 4109W. Family Theories. (WI; 3 cr. ; Student Option; Every Fall & Spring)
This course will include the review of current family theories, Bloom's Taxonomy of critical thinking, self-assessments, and application in a capstone paper.

FSOS 4111. Introduction to Family Therapy. (3 cr. ; Student Option; Every Fall & Spring)
This course is designed as an introduction to the field of Family Therapy. Students who successfully complete the course should be well versed in the basics of both the foundational and contemporary theories of the discipline. Further, students will be exposed to a number of clinical vignettes and case scenarios that demonstrate the application of the theories in pre-recorded family therapy sessions. Through class assignments and discussions, students will be able to make a more informed decision as to whether or not family therapy is a field that holds potential for them in their own professional pursuits. Other mental health disciplines attend to family variables but having a background in family systems theory and family therapy theories will provide a solid knowledge base for someone embarking on a career in family clinical work. Systems theory guides the majority of what will be discussed in class.

FSOS 4150. Special Topics in Family Social Science. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Summer)
Review of research/scholarly thought. Topics specified in Class Schedule.

FSOS 4153. Family Financial Counseling. (; 3 cr. ; A-F only; Every Fall)
Family financial issues are studied with an emphasis on the role of the financial counselor. This course emphasizes the development of professional skills for assisting individuals and families to cope with financial concerns in their day-to-day lives. This course includes a required service-learning component where students will work throughout the semester

with local non-profit organizations focused on financial literacy, financial counseling, financial curriculum development, and/or researching financial resources. This course will require students to produce video recordings. At minimum students will need recording equipment that captures both video and audio. The resulting file will need to be uploaded to the internet. Laptops with webcams and smart phones with video capabilities should be sufficient for this purpose. Equipment and training are available from the Library's SMART Learning Commons. prereq: [3101, 3102, 3429] or instr consent

FSOS 4154. Families and Aging. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Aging families from diverse socioeconomic/cultural groups as complex multigenerational systems interacting within ever-changing social structures.

FSOS 4155. Parent-Child Relationships. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
History, theories, research, and contemporary practices of parent-child relationships in diverse families/cultures across the life span. Preparation for professionals in education, social work, and other human service occupations.

FSOS 4158. Thailand: Global Change, Communities and Families. (GP; 3 cr. ; A-F only; Periodic Spring)
This interdisciplinary course uses social justice and human ecological lenses to examine global change that is occurring at the intersections among Thailand's natural environment, communities, families, and culture. Topics include globalization, human trafficking, education, religion, environmental issues, and cultural integration/identity formation, particularly among indigenous populations in northern Thailand. Students interact with key community leaders, village leaders, elders, and students who serve as teachers; this leads to critical understanding of Thai culture and the contemporary issues faced by Thailand's families and communities. Through journaling, digital stories, blogging, and discussions, students will synthesize, integrate, apply, and communicate what they've learned.

FSOS 4191. Independent Study in Family Social Science. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent reading or writing or research under faculty supervision. prereq: Sr, instr consent

FSOS 4193. Directed Capstone Project. (; 1-4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Individualizes experience by connecting aspects of major program with special academic interests.

FSOS 4294. Research Internship. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Research project with faculty. May include planning, proposal writing, literature review, data collection/coding/cleaning/analysis, and reporting. prereq: [FSOS major, at least jr] or instr consent

FSOS 4296. Field Study: Working With Families. (; 1-12 cr. [max 24 cr.] ; S-N or Audit; Every Fall & Spring)
Directed paraprofessional work experience related to student's area of study. prereq: 2101 or instr consent

FSOS 5014. Quantitative Family Research Methods I. (; 3 cr. ; Student Option; Every Spring)
Family research methods, issues associated with multiple levels of analysis. Conducting family-focused data analyses using basic/intermediate methods (through ANOVA and multiple regression), including power analysis. Ethical issues involved in family research such as IRB/HIPAA regulations. prereq: Grad student or instr consent

FSOS 5015. Family Research Laboratory. (; 1 cr. ; S-N or Audit; Every Spring)
Application of basic family research methods into experiential learning using statistical software. Analyses that correspond with problem situations in 5014 and that involve secondary data analyses. Using statistical software for basic family research. Preparation to work with quantitative family data sets. prereq: Grad student or instr consent

FSOS 5032. Family Systems Theories and Interventions. (; 3 cr. ; Student Option; Periodic Fall)
Systemic/cybernetic frameworks as they apply to diverse families. Thinking systemically about families across multiple ecological systems. How to identify crucial epistemological issues in theoretical/applied areas of family science. Theoretical frameworks. Experiential role-playing, guest presenters, videos, field work, research projects, reading clubs, class discussion. prereq: Grad student or instr consent

FSOS 5111. Introduction to Family Therapy. (3 cr. ; A-F only; Periodic Fall & Spring)
This course is designed as an introduction to the field of marriage/couple and family therapy. Students who successfully complete the course should be well versed in the basics of both the foundational and contemporary theories of the discipline. Further, students will be exposed to a number of clinical vignettes and case scenarios that demonstrate the application of the theories in pre-recorded family therapy sessions. Through class assignments and discussions, students will be able to make a more informed decision as to whether or not family therapy is a field that holds potential for them in their own professional pursuits. Other mental health disciplines attend to family variables but having a background in family systems theory and family therapy theories will provide a solid knowledge base for someone embarking on a career in relationship-oriented clinical work. Family systems theory guides the majority of what will be discussed in class.

FSOS 5150. Special Topics in Family Social Science. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Summer)
Review of research and scholarly thought. Topics specified in Class Schedule. prereq: instr consent

FSOS 5193. Directed Study in Family Social Science. (; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
tbd prereq: FSoS or grad student in related field

FSOS 5426. Alcohol and Drugs: Families and Culture. (3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Overview of psychology/sociology of drug use/abuse. Life-span, epidemiological, familial, cultural data regarding use. Fundamentals of licit/illicit drug use behavior. Gender, ethnicity, social class, sexuality, sexual orientation, disability.

FSOS 5429. Counseling Skills Practicum I. (3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Basic counseling skills. Counselor needs/motivations, non-verbal communication, basic/advanced empathy, identifying strengths, maintaining focus, challenging discrepancies, use of self. Emphasizes building from client strengths, learning through role-playing.

FSOS 5701. Prevention Science: Principles and Practices. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Theoretical, empirical, and practical foundations for strategic interventions to prevent behavioral problems and promote healthy development. Multidisciplinary roots of prevention science. Trends/directions and best practices.

FSOS 5702. Prevention Science Research Methodology. (3 cr. ; A-F or Audit; Every Fall & Spring)
This course is intended to provide students with broad exposure to topics in research methodology within the field of prevention science. Prevention science as a discipline focuses on the etiology and prevention of social, physical and mental health problems and the translation of that information to promote health and well-being. This course will emphasize research methodology as it pertains to preventive interventions in youth and family contexts. The course is intended to serve as a survey of a wide range of topics within these areas, with research design, measurement issues, and analytic methods representing the major foci. Topics will be covered with attention to the community contexts within which prevention research often occurs as well as the ethical and human subjects issues that may arise. Students who successfully complete the course are expected to be able to interpret and critically evaluate prevention research methodology as well as identify appropriate methodical strategies to address research questions within prevention science.

FSOS 5703. New Topics in Prevention: Implementation and Dissemination. (3 cr. ; A-F or Audit; Every Spring)
This is an interdisciplinary course focused on the new science of implementation and dissemination of evidence-based/empirically-supported family-focused psychosocial prevention programs. Course content will include an overview of conceptual and theoretical foundations of implementation

research, key research questions, methods for evaluating implementation and dissemination efforts, and case examples from the empirical literature. The course will take an ecological perspective to the implementation of family-based prevention programs, addressing questions such as how widespread efforts to install programs in communities can ensure that programs create change in children and families.

FSOS 5937. Parent-Child Interaction. (; 3 cr. ; A-F only; Every Fall & Spring)
In Parent-Child Interaction, we will examine the dynamic, reciprocal nature of parent-child interactions across the lifespan through multidisciplinary and diverse research, theories and practices. Emphasis will be given to the bidirectional impact of parent-child interactions on the parent-child relationship and on parents' and children's development within complex family, community, cultural and other socio-ecological contexts. Students will continue to reflect and grow in their understanding of the professional role and competencies of a parent educator and learning activities will focus on practical application to both personal lives and professional work with families.

FSOS 5942. Diverse Family Experiences. (; 3 cr. ; A-F only; Every Fall & Spring)
This course is a research-based in-depth look at family experiences from many diverse points of view. Students will examine diverse experiences of families and their relevance to parent education and to the professional development of parent educators. Research and theoretical knowledge are woven together with observation and personal reflection to create a strength-based approach to both families and professional development.

FSOS 5944. Curricular Design in Parent Education. (; 3 cr. ; A-F only; Every Fall)
Students will develop the skills to adapt and design curricular resources and teaching strategies for effective parent education with diverse families across multiple contexts. Students will develop competence in conducting needs assessment, identifying content, discerning teaching methods, and designing lesson plans. As they develop their own philosophy of practice, students will study the history and evolution of parent education in Minnesota and across the U.S. prereq: FSoS 5937 & FSoS 5942 or instr consent

FSOS 5945. Teaching and Learning in Parent Education. (; 3 cr. ; A-F only; Every Fall)
Students will examine adult, adolescent, and parent learning and development from the perspective of their relevance for parent education. Students will select, use, and reflect on group and individual parent education teaching strategies and facilitation processes designed to meet the needs of diverse populations of adult learners. Critical reflection, ethical practices, and other parent educator competencies related to teaching methods and processes will be addressed. Personal professional development will be facilitated through challenging assumptions and examining the knowledge and competencies required for parent educators. prereq: FSoS 5937 & FSoS 5942 or instr consent

FSOS 5946. Assessment and Evaluation in Parent Education. (; 3 cr. ; A-F only; Every Spring)
Students will be introduced to theory, terminology, issues, and approaches in assessment and evaluation. Students will apply this new material to the tasks of monitoring program performance, assessing program quality, and measuring parent learning and development. prereq: 5944 or instr consent

FSOS 5949. Student Teaching in Parent Education. (; 3 cr. ; A-F only; Every Spring)
Students will participate in mentored and supervised parent education practice designed to meet individual student needs and interests in parent education. The student teaching assignment is supplemented with online discussions and chats intended to provide students an opportunity to engage in discussion, reflection, and cooperative learning with regard to the practice of parent education. prereq: Application for student teaching; FSoS 5937, 5942, 5944 and 5945 or instr consent

Finance (FINA)

FINA 3001. Finance Fundamentals. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
How competition for capital in Capital Markets establishes metrics and measures used to understand financial performance of the firm. The course introduces the finance view of the firm and the application of value creation principles to firm decision making. Course presents the centrality of cash flows, the theoretical foundations for Time Value of Money, decision tools for investment of capital, basic valuation of stocks and bonds, and the theoretical foundations for the impact of risk on the required return on investor capital. prereq: ACCT 2050, SCO 2550 or equivalent statistics course

FINA 3001H. Honors: Finance Fundamentals. (; 3 cr. ; A-F only; Every Fall)
Financial management principles. Money/capital markets, risk/return/valuation triad, capital budgeting. Capital structure, financial leverage. Cost of capital, financial performance measures, dividend policy, working capital management, international financial management/derivatives. prereq: Acct 2050, SCO 2550 or equivalent statistics course

FINA 4121. Financial Markets and Interest Rates. (2 cr. ; A-F or Audit; Every Fall & Spring)
This course provides a framework to understand how financial markets operate and how they establish the cost of capital demanded by investors through market interest rates. Course presents valuation models for bonds, the impact of the Federal Reserve on the level and term structure of interest rates, measures of interest rate risk, financing markets for securities and how these define the pricing of futures and forward contracts. prereq: 3001 or 3001H CSOM major

FINA 4121H. Financial Markets and Interest Rates. (; 2 cr. ; A-F only; Every Spring)
Valuing fixed income securities. Term structure on interest rates. Forward rates. Fixed income valuation. Treasury, corporate, municipal, securitization markets. prereq: 3001, CSOM major, honors

FINA 4122. Banking Institutions. (; 2 cr. ; A-F or Audit; Every Spring)
This course will examine the financial intermediary?s role in the economy and the banking regulatory environment. The course focuses on the role of commercial bank operations, risks, performance and governmental policies regarding commercial banks. The course presents asset, liability and capital management issues and public policy issues. prereq: FINA 4121 or 4121H

FINA 4221. Principles of Corporate Finance. (2 cr. ; A-F only; Every Fall & Spring)
This course evaluates how the financing choices the firm makes influence the creation of firm value and allocation of firm risks among investors. Course presents the debt vs. equity trade-off, tax effects of financing, dividend vs. share repurchases, and the impact on managerial incentives and agency problems. prereq: 3001 or 3001H, CSOM major, math/actuarial science major

FINA 4234. Mergers and Acquisitions In Action ? Process and Valuation. (2 cr. ; A-F only; Every Fall)
This Action Based Course will explore in an experiential way the methodology corporate managers employ and invest capital to achieve growth and a return to its shareholders through mergers and acquisitions. Starting with the strategic rationale and ending with the challenges of integration, this course will focus on the process used for identifying M&A targets and the methods used in practice to value these transactions. The objectives of the course will be to leverage skills mastered in the core curriculum: finance, marketing, accounting, and operations ? and other related courses that will help you in this class. Prerequisite: Fina 4422

FINA 4242W. Corporate Investment Decisions. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Managing firm's investment in working capital/fixed assets. Capstone course requiring application of corporate valuation principles from earlier coursework to cases involving working capital management, making capital budgeting decisions, targeting/evaluating firm performance, assessing mergers/acquisitions, and other topics. prereq: 3001, 4121 or 4121H, 4321 or 4321H, 4422, 4522, CSOM major

FINA 4321. Portfolio Management and Performance Evaluation. (2 cr. ; A-F or Audit; Every Fall & Spring)
This course uses statistics to demonstrate how the construction of portfolios of individual securities impacts the risk return trade-off for investors through diversification. Course presents models of pricing investor risk, impact of asset allocation on returns, active versus indexed portfolio management, and approaches to measure value added performance of investment portfolios. prereq: 3001 or 3001H, CSOM major

FINA 4321H. Portfolio Management and Performance Evaluation. (; 2 cr. ; A-F only; Every Spring)
Investment environment. Concepts used to manage security portfolios. Risk/return tradeoffs, diversification. Asset allocation, Active portfolio management versus indexed portfolios. Portfolio performance evaluation. prereq: 3001, CSOM major, honors

FINA 4325. Behavioral Finance. (2 cr. ; A-F only; Every Spring)
This course introduces students to how the application of psychology and realistic settings to guide and develop the alternative theories of financial market complements the traditional theoretical finance paradigm. The student will use the insights of behavioral finance to shed light on trading patterns, behavior of asset prices, corporate finance and various other financial topics. prereq: 4321 or 4321H

FINA 4329. Security Analysis Capstone. (2 cr. ; A-F only; Every Fall & Spring)
Valuation of equity securities. Principles. Relationship between various valuation approaches. Tools to test self-designed security selection rules. prereq: 4121 or 4121H, 4321 or 4321H, 4422, 4522, ACCT 5100 or ACCT 5101

FINA 4422. Financial Modeling. (; 2 cr. ; A-F only; Every Fall & Spring)
This applied course builds on principles from the prerequisite courses and provides students with significant practice building financial models to identify the free cash flow from and required investment in projects or firms for discounted cash flow and sensitivity analysis. Course presents net operating working capital requirements, Valuation with Free Cash Flow based methods, and the construction of three statement pro-forma cash flow projections. Prereq: FINA 4221, ACCT 5101, CSOM major

FINA 4522. Options & Derivatives I. (2 cr. ; A-F only; Every Fall & Spring)
This course provides a comprehensive introduction to derivative contracts and their pay-offs and basic pricing and how they are used to manage risk or speculate in financial markets. Course presents forward and futures contracts, option contracts and swap contracts. prereq: 3001 or 3001H or ApEc 3501, 4121 or 4121H, 4321 or 4321H (can be concurrent), CSOM major

FINA 4529. Derivatives II Capstone. (2 cr. ; A-F only; Every Spring)
Quantitatively advanced material such as Black-Scholes model for valuing option sensitivities (the Greeks). Value-at-risk methods. Valuation/uses of credit derivatives such as default swaps/collateralized debt obligations. prereq: 4522 or 4523

FINA 4621. The Global Economy (Macro). (; 2 cr. ; A-F only; Every Fall & Spring)
This course provides the student with a foundation for understanding the macroeconomics of the global economy with a focus on international financial issues. The course presents macroeconomic models, international capital flows and currency and exchange rate systems. prereq: Fina 3001 or 3001H, CSOM major

FINA 4622. International Finance. (2 cr. ; A-F only; Every Fall & Spring)
This course provides the student with an understanding of the nature and purposes of financial management in the international context for multinational enterprises and skills in international investment, financing techniques and exchange rate risks. The student will examine barriers to international capital flows and some of the tools used to overcome these barriers. The course presents cost of capital in emerging economies and currency risk management. prereq: CSOM major, Fina 3001 or 3001H, 4121 or 4121H, 4221

FINA 4920. FinanceTopics. (; 2-4 cr. [max 10 cr.] ; A-F or Audit; Periodic Fall & Spring)
Discussion and analysis of current topics and developments in Finance.

FINA 5125. Cryptocurrency, Blockchain, and Their Business Applications. (2 cr. ; A-F only; Every Spring)
This course discusses cryptocurrencies (including Bitcoin, Ethereum, and others), blockchain, also referred to as distributed ledger technology (DLT), and their applications in various business sectors. The course first explains the history of cryptocurrency and the fundamentals of blockchain including cryptography and consensus mechanism. Although technical, this part is essential to establish a foundation to understand cryptocurrencies and blockchain. The rest of the course is on the applications of blockchain. We will discuss enterprise blockchain, smart contracts, and token offerings, e.g., initial coin offerings (ICOs) and securities token offering (STOs). We will have industry experts to give guest lectures on the realworld blockchain applications and interact with students. Finally, we will cover the valuation models for cryptoassets, the practical details of how to use cryptocurrency, and various investments related to blockchain. The goal of the course is to provide students with a basic set of skills to understand cryptocurrencies and blockchain and how businesses can use them.

FINA 5422. Financial Econometrics and Computational Methods I. (2 cr. ; A-F only; Every Fall)
This course provides an introduction to the methods used in empirical finance. A review of statistics is followed by intensive instruction on matrix algebra that culminates in a fundamental understanding of linear regression, the basic empirical tool. Asset pricing theories are discussed and developed and then methods are derived to test them. The course will emphasize estimation and inference using computer-based applications.

FINA 5423. Financial Econometrics and Computational Methods II. (2 cr. ; A-F only; Every Fall)
This course builds on Financial Econometrics I and provides instruction on the econometrics used in empirical finance. Topics will include time series analysis, parametric models of volatility, evaluation of asset pricing theories, and models for risk management. The course will emphasize estimation and inference using computer-based applications.

FINA 5529. Derivatives II. (2 cr. ; A-F only; Every Spring)
Quantitatively advanced material such as Black-Scholes model for valuing option sensitivities (the Greeks). Value-at-risk methods. Valuation/uses of credit derivatives such as default swaps/collateralized debt obligations.

FINA 5920. Finance Topic. (; 2-4 cr. [max 8 cr.] ; A-F only; Periodic Fall & Spring)
Discussion and analysis of current topics and developments in Finance.

Financial Mathematics (FM)

FM 5001. Preparation for Financial Mathematics I. (; 3 cr. ; Student Option; Every Fall)
Mathematics needed for MFM program. prereq: Grad MFM major or MFM program director approval

FM 5002. Preparation for Financial Mathematics II. (; 3 cr. ; Student Option; Every Spring)
Mathematics needed for MFM program. prereq: 5001, program director approval

FM 5011. Mathematical Background for Finance I. (; 4 cr. ; Student Option; Every Fall)
Mathematics needed for MFM program. Focuses on finance. prereq: [5001, 5002] with grade of at least B or [MFM program director approval, grad MFM major]

FM 5012. Mathematical Background for Finance II. (; 4 cr. ; Student Option; Every Spring)
Mathematics needed for MFM program. Focuses on finance. prereq: 5011, grad MFM major, program director approval

FM 5021. Mathematical Theory Applied to Finance I. (; 4 cr. ; Student Option; Every Fall)
Bridge between theory and application. prereq: [5011 or concurrent registration is required (or allowed) in 5011], grad MFM major, program director approval

FM 5022. Mathematical Theory Applied to Finance II. (; 4 cr. ; Student Option; Every Spring)
Bridge between theory and application. prereq: 5021, [5012 or concurrent registration is required (or allowed) in 5012], grad MFM major, program director approval

FM 5031. A Practitioner's Course in Finance I. (; 4 cr. ; Student Option; Every Fall)
Practical course taught by industry professionals. Focuses on hands-on real-world problem solving. prereq: [5021 or concurrent registration is required (or allowed) in 5021], grad MFM major, program director approval

FM 5032. A Practitioner's Course in Finance II. (; 4 cr. ; Student Option; Every Spring)
Taught by industry professionals. Focuses on hands-on real-world problem solving.

prereq: 5031, [5022 or concurrent registration is required (or allowed) in 5022], grad MFM major, program director approval

FM 5091. Computation, Algorithms, and Coding in Finance I. (4 cr. ; Student Option; Every Fall)
Implements popular finance models and numerical techniques using mainstream computational tools/languages. prereq: Grad MFM major, program director approval

FM 5092. Computation, Algorithms, and Coding in Finance II. (4 cr. ; Student Option; Every Spring)
Implements popular finance models and numerical techniques using mainstream computational tools/languages. prereq: 5091, grad MFM major, program director approval

FM 5990. Topics in Financial Mathematics. (; 1-2 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
The course will focus on a special topic in quantitative finance that supplements the regular curriculum of the Master of Financial Mathematics program. The course features experts, often finance industry practitioners, who share their experience and knowledge. prereq: enrolled in the Master of Financial Mathematics program or instr consent

Finnish (FIN)

FIN 1001. Beginning Finnish I. (; 5 cr. ; Student Option; Every Fall)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include every day subjects (shopping, directions, family, food, housing, etc.).

FIN 1002. Beginning Finnish II. (; 5 cr. ; Student Option; Every Spring)
Continues the presentation of all four language modalities (listening, reading, speaking, writing) with a proficiency emphasis. Topics include free-time activities, careers, and the Finnish culture. prereq: 1001

FIN 1003. Intermediate Finnish I. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. prereq: 1002

FIN 1004. Intermediate Finnish II. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. prereq: 1003

FIN 3011. Advanced Finnish. (; 3 cr. ; Student Option; Every Fall)
Designed to help students achieve advanced proficiency in Finnish. Discussion of fiction, film, journalistic, and professional prose is complemented by grammar, vocabulary building exercises, and review of oral/written modes of communication. prereq: 1004 or 4004

FIN 3012. Advanced Finnish. (; 3 cr. ; Student Option; Every Spring)
Discussion of novels, short stories, plays, articles. Structural, stylistic, vocabulary-building exercises. prereq: 3011 or 4011

FIN 4001. Beginning Finnish for Graduate Research I. (; 5 cr. ; Student Option; Every Fall)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include every day subjects (shopping, directions, family, food, housing, etc.). Meets concurrently with 1001.

FIN 4002. Beginning Finnish for Graduate Research II. (; 5 cr. ; Student Option; Every Spring)
Continues the presentation of all four language modalities (listening, reading, speaking, writing) with a proficiency emphasis. Topics include free-time activities, careers, and the Finnish culture. Meets concurrently with 1002.

FIN 4003. Intermediate Finnish for Graduate Research I. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. Meets concurrently with 1003.

FIN 4004. Intermediate Finnish for Graduate Research II. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. Meets with 1004.

FIN 4011. Advanced Finnish for Graduate Research. (; 3 cr. ; Student Option; Every Fall)
Designed to help students achieve advanced proficiency in Finnish. Discussion of fiction, film, journalistic, and professional prose is complemented by grammar, vocabulary building exercises, and review of oral/written modes of communication. Meets with 3011.

FIN 4012. Advanced Finnish for Graduate Research. (; 3 cr. ; Student Option; Every Spring)
Discussion of novels, short stories, plays, articles. Structural, stylistic, vocabulary-building exercises. Meets with 3012.

Fisheries and Wildlife (FW)

FW 1001. Orientation in Fisheries, Wildlife, and Conservation Biology. (; 1 cr. ; A-F or Audit; Every Fall)
Survey of technical requirements and education needed for careers in fisheries, wildlife, and conservation biology. Introduction to fields of work, problems, career opportunities. Prerequisite: FWCB major or instructor permission.

FW 2001W. Introduction to Fisheries, Wildlife, and Conservation Biology. (ENV,WI; 3 cr. ; Student Option; Every Fall)
Fish, wildlife, and other forms of biodiversity. Single species, populations, ecosystem, and landscape approaches. Experiential/interactive course. Decision-case studies. prereq: BIOL 1001 or BIOL 1009

FW 2003. Introduction to Marine Biology. (3 cr. ; Student Option; Every Spring)
Nature of oceans, their role sustaining life on planet. Diversity/ecology of organisms that live in coastal, deep, open seas. Effects of humans on marine life. Resilience of marine life, its importance to human society. Cultures of oceanic peoples. Selected topics. prereq: BIOL 1001 or BIOL 1009 or BIOL 2002 or ESCI 1006 or ESCI 1106 or instr consent

FW 3104. Skills for Field Techniques in Habitat Assessment, Research, and Conservation. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
In this field-preparation and application class, students develop skills required for the field session (FW 3106 + FW 3108) and future professional positions in fisheries, wildlife, and conservation biology. Students complete a series of online activities that prepare them to use analytical tools (e.g., tools for statistical analysis, GIS/GPS, spatial methodology, advanced lab- and field-based skills). Students build knowledge about Minnesota species including identification and natural history information of plants, amphibians and reptiles, birds, fish, and mammals. Students demonstrate readiness for fieldwork by conducting an independent, field-focused project. prereq: [soph, jr, sr], FW major

FW 3106. Vegetation Sampling for Habitat Assessments. (; 1 cr. ; A-F or Audit; Every Summer)
Common vegetation sampling methods used for habitat assessments. Identify approximately 75 vascular plant species typical of Minnesota terrestrial and aquatic ecosystems using taxonomic keys and readily observable traits. Importance of plants for providing food, cover, and nesting habitat. prereq: [soph, jr, sr], FW major

FW 3108. Field Methods in Research and Conservation of Vertebrate Populations. (3 cr. ; A-F or Audit; Every Fall & Spring)
The goal of this course is to help students develop skills and confidence in planning and implementing effective field research. The topics we will cover include species identification, basic statistical analysis, aquatic ecological assessments, and wildlife research. 1. Students in the course will gain experience in planning and conducting field-based research projects and will be introduced to a variety of techniques used in assessing and/or monitoring terrestrial and aquatic wildlife populations. 2. Students will learn to (1) identify common terrestrial and aquatic vertebrate species in Minnesota, (2) design, plan and conduct field-based research, (3) collect, analyze, and interpret field data including telemetry, bird point counts, amphibian surveys, and trap-grid and remote-camera data, (4) put data findings into a context of management implications and decisions, and (5) communicate findings in written formats

3. Multiple full-day field trips or a 5-day field session is required for this course. prereq: FW 3104

FW 3293. Directed Study Fisheries. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FW 3294. Directed Research Fisheries. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research course will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FW 3393. Directed Study Wildlife. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FW 3394. Directed Research Wildlife. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research course will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FW 3480. Topics in Fisheries, Wildlife & Conservation Biology. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Lectures by visiting scholar or regular staff member. Topics specified in Class Schedule.

FW 3493. Directed Study Conservation Biology. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FW 3494. Directed Research Conservation Biology. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research course will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FW 3925. Human Dimensions of Fisheries and Wildlife Management. (3 cr. ; A-F only; Every Spring)
Human dimensions of fish and wildlife concerns. Theory and methods from social sciences to address challenges and issues of managing fish and wildlife resources. Integrating social science information into fish and wildlife decision-making. Guest lecturers.

FW 4001. Biometry. (; 4 cr. ; A-F or Audit; Every Fall)
This course covers the basic foundations of statistical methods. In contrast to traditional methods of teaching statistics based on analytical formulas and hand-calculations, we will initially emphasize simulation-based methods (randomization tests, bootstrapping) for analyzing data. Students will learn how to implement common statistical methods (e.g., one and two sample tests, interval estimation techniques, linear regression) in the R programming language, and gain experience analyzing real data from a variety of fields, with particular emphasis on biological examples and applications.

FW 4101. Herpetology. (; 4 cr. ; Student Option; Spring Odd Year)
Reptiles/amphibians, their systematics, behavior, ecology, physiology, development, and morphology. Diversity of reptiles/amphibians. Focuses on Minnesota fauna. Lab. prereq: BIOL 1001 or BIOL 2012

FW 4102. Principles of Conservation Biology. (ENV; 3 cr. ; Student Option; Every Spring)
Introduction to themes/concepts of diverse, dynamic, and interdisciplinary field. Biological/social underpinnings of conservation problems/solutions. prereq: introductory biology course

FW 4103. Principles of Wildlife Management. (; 3 cr. ; Student Option; Every Spring)
This course covers the ecological basis for management of wildlife, including biological and sociological factors that influence management. Goals include: understanding the ecological mechanisms influencing the distribution and abundance of wildlife, learning the ecological and historical foundations of wildlife management and the ecological and social ramifications of management actions, thinking critically and logically about current wildlife issues, honing writing skills, and developing technical skills in key areas. prereq: Intro biology course, [jr or sr]

FW 4107. Principles of Fisheries Science and Management. (3 cr. ; A-F only; Every Spring)
Principles of Fisheries Management is an engaging and dynamic exploration to the principles and practices of fisheries management. The course is designed as a major requirement for Fisheries subplan majors in Fisheries, Wildlife, and Conservation Biology. It is also appropriate as an elective course for other majors and minors in FWCB, ESPM, or related biological disciplines. We cover the basics of fisheries science (habitats, ecology, and population dynamics) and management (e.g., goals, tools, implementation, and assessment) with an emphasis on human intervention and regulation. We first cover management approaches and planning, the development of an information base, and the identification of problems. We then provide a brief overview of applied limnology, fish ecology, and population dynamics, followed by approaches to manage fishery populations and habitats in freshwater and marine systems along with methods to assess management outcomes. Throughout, we demonstrate applications to specific fisheries and habitats. This is primarily a lecture-based course that also integrates field trips, group discussions, and activities. We use exams to measure comprehension, and case studies and assignments to encourage practical application. Prerequisite: Intro biology course, [jr or sr]

FW 4136. Ichthyology. (; 4 cr. ; Student Option; Every Fall)
Fish biology, adaptations to different environments and modes of living, and environmental relationships. Lab emphasizes anatomy and identification of Minnesota fishes. prereq: Biol 1001 or Biol 2012

FW 4301. Conservation Genetics. (3 cr. ; A-F or Audit; Spring Even Year)
This course introduces students to fundamental principles of population genetics and molecular phylogenetics and explores their applications to problems in the conservation, management, and restoration of biodiversity.

FW 4401. Fish Physiology and Behavior. (; 3 cr. ; Student Option; Every Fall)
Fish mechanisms/behavior. Links between fish biology, fisheries ecology, management, aquaculture. Homeostasis, neurobiology, bioenergetics, reproduction, movement. prereq:

4136, BIOL 2012, CHEM 1021(may be taken concurrently)

FW 4603. Preparing Research Proposals for Wildlife Biologists. (1 cr. ; A-F only; Every Fall)
This course will give students experience developing research proposals and presentations. The course material will focus primarily on how to identify research questions, develop a budget, construct a written proposal, and present the proposal verbally. Students will work in small groups throughout the semester to develop their proposal and will gain skills in peer review and reference management. Prerequisites: EEB 3407 OR 3408 OR 3807, FW 4102 OR 4103, or permission from instructor, concurrent with FW 5603W.

FW 4629. Wildlife Care and Handling Externship. (3 cr. ; A-F only; Every Spring)
This externship class is the capstone experience of the wildlife care and handling minor curriculum. The class synthesizes the practical skills and experience you have developed in earlier classes in the minor. The capstone is a guided, supervised, hands-on, on-site experience in a wildlife handling setting, complemented by pre-, during- and post-experience reflection and analysis.

FW 5003. Human Dimensions of Biological Conservation. (; 3 cr. ; Student Option; Every Fall)
Survey of social, psychological, economic, policy aspects of managing/conserving wildlife, fisheries, and related resources. prereq: [Biol 1001 or Biol 1009], Biol 3407

FW 5051. Analysis of Populations. (4 cr. ; Student Option; Every Spring)
Regulation, growth, general dynamics of populations. Data needed to describe populations, population growth, population models, regulatory mechanisms. prereq: [4001 or STAT 3011 or ESPM 3012], [BIOL 3407 or BIOL 3408W or BIOL 3807], Senior or grad student

FW 5121. Conservation Planning and Structured Decision-making. (3 cr. ; A-F only; Every Spring)
We are impacting our planet and the species and ecosystems on it at an unprecedented rate. This creates key policy challenges to conserve species, ecosystems, and the benefits they provide to people. But, how do we decide what is the best way to tackle these challenges? How do we do this in a world with limited resources (time, money) for conservation and multiple stakeholders with different objectives? How can we make systematic decisions to get the biggest bang for our conservation buck? To address these questions, this course will cover key topics and concepts in conservation planning and provide exposure and hands-on experience with techniques for conservation plans and decisions. We will cover topics ranging from protected areas, restoration, ecosystem services, and climate change to structured decision-making, adaptive management, and return on investment. The course has a lecture and in-class computer lab component. This course will present structured approaches to problem-solving and decision-making from a conservation perspective, and students will leave with tools for structuring and solving complex environmental problems. Therefore, this is a foundational course in conservation planning but will also provide students will a tool-box to formulate and solve complex problems in environmental management more broadly and in life. Prerequisites: Senior or graduate standing, or permission of instructor. Recommended: One course in ecology, environmental science or permission of instructor.

FW 5136. Ichthyology. (; 4 cr. ; Student Option; Every Fall)
Fish biology, adaptations to different environments and modes of living, and evolutionary relationships. Laboratory emphasizes anatomy and identification of Minnesota fishes.

FW 5293. Directed Study Fisheries. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FW 5294. Directed Research Fisheries. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research course will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FW 5392. Special Lectures: Wildlife. (; 1-5 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
Lectures given by visiting scholar or staff member.

FW 5393. Directed Study Wildlife. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out an independent project under the direction of a faculty member. Directed study courses may be taken for variable credit and special permission is needed for enrollment.

FW 5394. Directed Research Wildlife. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed Research: An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FW 5401. Fish Physiology and Behavior. (; 3 cr. ; Student Option; Every Fall)
Fish mechanisms/behavior. Links between fish biology, fisheries ecology, management, aquaculture. Homeostasis, neurobiology, bioenergetics, reproduction, movement.

FW 5459. Stream and River Ecology. (3 cr. ; Student Option; Fall Even Year)
Structure/dynamics of running waters from ecosystem perspective. Historical perspective, basic hydrology/fluvial geomorphology, terrestrial-aquatic interactions, detrital dynamics, metabolism, drift, trophic relations, biotic/abiotic interactions, ecosystem experiments and natural alterations, stability/succession, ecosystem dynamics in a watershed. prereq: Limnology course or instr consent

FW 5493. Directed Study Conservation Biology. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FW 5494. Directed Research Conservation Biology. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research course will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FW 5601. Fisheries Population Analysis. (; 3 cr. ; A-F or Audit; Every Fall)
Introduction to theory/methods for estimating vital statistics of fish populations. Using microcomputers/statistical software to describe, analyze, model attributes of fish populations. Case studies from literature of marine/freshwater fisheries management. prereq:

[4001 or Stat 5021], Biol 3407, [Math 1142 or Math 1271]

FW 5603W. Habitats and Regulation of Wildlife. (WI; 3 cr. ; A-F or Audit; Every Fall)
Environmental interactions of wildlife at population/community levels. Environmental threats from human activities. Habitat management practices. Objectives, policies, regulations in population management. prereq: [FW 4102 or FW 4103], [EEB 3407 or EEB 3408 or EEB 3807]

FW 5625. Wildlife Handling and Immobilization for Research and Management. (; 2 cr. ; S-N or Audit; Every Spring)
Practical techniques to maximize human/ animal safety and encourage effective operations. Preparation procedures, legal responsibilities, capture drugs/delivery systems, safety measures, ethical issues, basic veterinary procedures for handling wildlife. Field course. Uses live animals. prereq: General biology, [grad student or vet med student or FW sr]

Food Science and Nutrition (FSCN)

FSCN 1001. Orientation to the Majors: Food Science and Nutrition. (1 cr. ; S-N only; Every Fall)
Advising, student opportunities, networking, what kinds of jobs will be available after graduating.

FSCN 1011. Science of Food and Cooking. (PHYS; 4 cr. ; Student Option; Every Fall & Spring)
Souffles, custards, sauces, coffee brewing, candy making used to examine physics/ chemistry of heat transfer, foams, gels, emulsions, extractions, crystallization.

FSCN 1012. Sports Nutrition. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Physiological function and metabolic fate of all six classes of nutritients ingested by active individuals to improve athletic performance. Impact on physiology of ergogenic aids and various dietary supplements. Overview of these components in fulfilling energy/recovery needs for continual/progressive athletic performance. Web-based course.

FSCN 1102. Food: Safety, Risks, and Technology. (CIV; 3 cr. ; Student Option No Audit; Every Fall & Spring)
Introduction to inherent risks/safety of food supply. Use of public policy and food technology to reduce risks. Microbiological, chemical, and environmental hazards, government/industry controls.

FSCN 1112. Principles of Nutrition. (TS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course explores fundamental concepts of nutrition, nutrient functions, human nutritional requirements, and food sources. We will learn about evaluating nutrition information and food safety, and investigate the role of nutrition in chronic disease, public policy, and the environment. Nutrition is both a science and social science. This class involves social aspects, but mainly concerns the biochemistry and physiology of how food is processed in the body. The chapters on carbohydrates, lipids, proteins, and metabolism especially built on biology and physiology. Course topics include: 1. essential nutrients (macro-and-micro-nutrients) needed from the diet; 2. major functions of nutrients and physiological changes with deficiency or excess; 3. digestion, absorption, and metabolism of nutrients; 4. weight management; 5. scientific method and nutrition; 6. life cycle issues; 7. food safety issues 8. nutrition for sports Prerequisites: High school biology and chemistry

FSCN 1906. Farm to Someone Else's Table: Making food accessible for all students. (; 3 cr. ; Student Option; Every Fall)
Overview This course explores a potential theory of gradually changing the food system to better include meaningful and relevant practical, healthy, affordable, desirable (PHAD) foods that will enhance the nutrition of the general population and ultimately enhance public health. We will foster essential leadership qualities, skills, and knowledge to work toward collective solutions around adaptive challenges. We will create a valid, reliable, and sustainable process for the development of practical, healthier, affordable, and desirable foods.

FSCN 2001. A Food Systems Approach to Cooking for Health and the Environment. (3 cr. ; Student Option; Every Fall)
This is a fun, hands-on cooking class. It is also an Experiential Learning (EL) course which meets the EL requirement for all CFANS students. This lecture /lab format course will give students the confidence to cook healthful whole foods as they learn about the food system. Subject matter will be taught from an interdisciplinary perspective. Concepts covered include fundamental concepts of nutrition, food sources, food safety, the food system; skills/resources for food choices based on nutritional, environmental, local and global societal implications. We will examine the ethical and civic themes that guide food choices. We will discuss and write about how environmental, cultural, social, and health issues impact personal food choices. prereq: [soph, jr, sr] or instructor consent

FSCN 2002. Healthy Foods, Healthy Lives - Cooking on a Student's Budget. (1 cr. ; Student Option; Every Fall & Spring)
Skills/tools necessary to be comfortable/ confident home cooks, knowledgeable about preparation of nutritional/safely prepared foods. Food safety, basic nutrition, technique instruction, budgeting, time management, menu design, measuring, cooking methods, preservation.

FSCN 2021. Introductory Microbiology. (; 4 cr. ; A-F only; Every Fall & Spring)
How microbes impact our world in deadly/ life-saving ways. Roles of bacteria, fungi, and viruses as agents of human diseases; in food spoilage/food borne diseases; and in food preservation/health promotion. Preventing plant diseases, food/drug production, cleaning up oil spills. Genetic engineering.

FSCN 3102. Introduction to Food Science. (; 3 cr. ; Student Option; Every Fall)
Introduction to chemical/physical properties of foods. Evaluating interaction/reaction of foods due to formulation, processing, preparation. prereq: CHEM 1022 or [CHEM 1062 and CHEM 1066]

FSCN 3612. Life Cycle Nutrition. (3 cr. ; Student Option; Every Fall)
Nutritional changes throughout lifecycle. Pregnancy, lactation, childhood, adulthood, aging. Topics relevant to lifecycle changes (e.g., body composition, immunity, sports nutrition). prereq: CHEM 1061/1065

FSCN 3614. Nutrition Education and Counseling. (; 3 cr. ; Student Option; Every Fall)
Effective communication skills are essential for all food and nutrition professionals whether working in clinical, community, management, or food service settings. This course is divided into two components: nutrition education and counseling. These two components will first teach the necessary knowledge and skills required of entry level dietitians such as educational theory and techniques, counseling theory and methods, interviewing techniques, and health literacy. You will also develop and practice these skills through application verbally in breakout sessions as well as written. The written component for the education section will include an interview paper; several informal activities in class all which will help develop and practice skills to complete the final project of developing a nutrition education lesson plan. The syllabus will focus on the nutrition education component. prereq: 1112

FSCN 3615. Sociocultural Aspects of Food, Nutrition, and Health. (GP; 3 cr. ; A-F only; Every Spring)
Sociocultural aspects of regional/cultural diversity in food preferences and food behavior, food habits, demographics, lifestyles, food consumption, and expenditures. Effect of socioeconomic status, religious beliefs, age, and cultural meaning of foods on food choices.

FSCN 3731. Food Service Operations Management Laboratory. (; 2 cr. ; A-F or Audit; Every Fall)
Experience in managing a food service operation. On- and off-campus commercial and institutional restaurants used as labs. Required field trips. prereq: [3102 or concurrent registration is required (or allowed) in 3102], [3732 or concurrent registration is required (or allowed) in 3732]

FSCN 3732. Food Service Operations Management. (; 3 cr. ; A-F or Audit; Every Fall)
Planning, preparing, delivering, serving, managing foods served away from home.

FSCN 3993. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed

study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FSCN 3994. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FSCN 4096. Professional Experience Program: Internship. (1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Apply knowledge from Food Science BS or Nutrition BS program to real-life problems in professional internship. Performance evaluated for credit. prereq: To register, students must fill out FScN Internship Agreement form, available at http://fscn.cfans.umn.edu. Contact fscnug@umn.edu with questions.

FSCN 4112. Food Chemistry and Functional Foods. (; 3 cr. ; Student Option; Every Fall)
Most-important food constituents, their occurrence, structures, functional properties, and health benefits. Proteins, lipids, carbohydrates, water. Vitamins, minerals, enzymes, phytochemicals, food additives, contaminants. prereq: 3102, BIOC 3021

FSCN 4113. Ingredient Functionality and Applications in Food. (2 cr. ; Student Option; Every Spring)
The course covers the practical use of various ingredients in different food matrices, with a focus on ingredient functionality, interactions, and substitutions. The emphasis will be on demonstrating the use of different ingredients to achieve a desired product quality, while addressing trends such diet restrictions, healthy foods, clean label, fair trade, sustainable sourcing, cost-optimization, among others. Other emphases will include ingredient handling, processing and stability. The course will be organized based on different food systems such as confectionery, baked products, fried foods, dairy and imitation dairy, etc.

FSCN 4121. Food Microbiology. (; 3 cr. ; Student Option No Audit; Every Spring)
Microorganisms involved in food-borne disease, food fermentations, and food spoilage. Methods for their control/detection. Food microbiology. Foodborne pathogens. Microbial food spoilage. Control of microorganisms in food. prereq: BIOC 3021, [2021 or VBS 2032 or MICB 3301]

FSCN 4122. Food Fermentations and Biotechnology. (; 2 cr. ; Student Option; Every Fall)
Major food fermentations important for food industry. Microbiological components. Impact of biotechnology on food production. Genetic tools. Improvement of microbes used in food production by biotechnological approaches. prereq: [MICB 3301, BIOL 4003] or instr consent

FSCN 4123. Molecular Biology for Applied Scientists. (1 cr. ; A-F only; Every Fall)
Half semester course. Two hours/week for 8 weeks. Basics of molecular biology. Origins of molecular biology from discovery to ad of gene cloning/sequencing technologies. PCR, DNA fingerprinting, metagenomics. Synthetic biology for biotechnological production of novel peptides/ proteins. prereq: [BioC 3021 and MicB 3301] or FScN 2021 or instr consent

FSCN 4131. Food Quality. (; 3 cr. ; Student Option; Every Fall)
This course is designed to give students an overview of the management systems, statistical procedures, and regulatory requirements involved with producing quality food and ingredients. The course material includes risk assessment and management, good manufacturing practices, hazard analysis critical control point (HACCP), statistical methods for process control, total quality management, and food and drug laws. The course is intended primarily for upper division undergraduates majoring in food science. prereq: jr

FSCN 4291. Independent Study. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Individual lab or library research in an area related to food science or nutrition. prereq: Undergrads, instr consent

FSCN 4311. Chemical Reactions in Food Systems. (; 2 cr. ; Student Option; Every Spring)
Chemical structure of major food constituents, carbohydrates, lipid, and proteins. Reaction/ interaction pathways. Function within complex food matrix under various storage/processing conditions. prereq: 4112, 4312W

FSCN 4312W. Food Analysis. (WI; 4 cr. ; Student Option; Every Fall)
The course covers major analytical tools needed for any investigation in food science and technology, whether by the food industry, governmental agencies, or universities. Specifically, the course covers: application of quantitative and qualitative physical, chemical, and instrumental methods used for analysis and examination of food constituents, ingredients, and products; sensory evaluation techniques; and evaluation of methods and interpretation of results. The course covers methods used for: compositional analysis of foods; chemical characterization of foods and food constituents; and spectroscopic, chromatographic, and spectrometric analysis used for the detection, identification, and quantification of food macro- and micro-components. In this course the students will learn to identify the appropriate methods of analysis based on the investigation purpose, either nutrition labeling, quality control, product development, or scientific research. prereq: FSCN 4112

FSCN 4332. Food Processing Operations. (; 3 cr. ; A-F or Audit; Every Spring)
Engineering principles applied to commonly used food processing operations. Blanching, pasteurization, sterilization, frying, baking, milling, extrusion. Meat processing, water treatment, waste management. Prerequisite: BBE 4744

FSCN 4349. Food Science Capstone. (2 cr. ; A-F only; Every Fall & Spring)
Planning of process or product development project. Defining goals, preparing/following time line, reviewing literature, coordinating with experts, procuring supplies, writing progress reports. Determining ingredient specifications, lab/pilot plant production. Chemical, microbiological, sensory testing. Oral/written presentations. prereq: 4112, 4121, 4131, 4312, 4332, BBE 4744, Food Science Major, senior

FSCN 4481. Sensory Evaluation of Food Quality. (1 cr. ; A-F only; Every Spring)
Fundamentals of sensory perception. Test designs and methods used in studying sensory qualities of foods and consumer responses to foods. prereq: 3102, Stat 3011

FSCN 4482. Sensory Evaluation of Food Quality. (2 cr. [max 4 cr.] ; A-F only; Every Spring)
Fundamentals of sensory perception. Test designs and methods used in studying the sensory qualities of foods and consumer responses to foods. This course includes six, 1-hour tasting sessions, six, 1-hour data analysis sessions and weekly 50-minute classroom activities.

FSCN 4612W. Advanced Human Nutrition. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Advanced study of digestion/absorption of nutrients. Research techniques in nutrition, including human/epidemiological studies. Health promotion, disease prevention theories. Non-Enforced Prerequisites: FSCN 1112, CHEM 1062 and CHEM 1066 Enforced Prerequisites (students cannot register without the following): BioC 3021 or PHSL 3051 or ANSC 3301 or BIOL 3211 or Instructor Consent

FSCN 4613. Experimental Nutrition. (; 2 cr. ; Student Option; Every Spring)
This is a laboratory course focused on biochemical methods for determining nutritional status. This course uses biological samples from the students themselves as the source material. In this course, students will develop a better understanding of the usefulness and limitations of the biochemical methods, as well as the principles behind the procedures and instruments used. Students will also expand their nutrition knowledge, improve their lab skills, develop their scientific writing abilities, and exercise their problem solving skills. Prerequisites: BIOC 3021, STAT 3011, Nutrition Major, or Instructor Consent

FSCN 4614W. Community Nutrition. (DSJ,WI,SOCS; 3 cr. ; A-F only; Every Spring)
Nutrition risks associated with different age, sex, ethnic, and socioeconomic groups. Community needs assessment. Program planning and evaluation. Programs developed to address the needs and interests of people at different stages of the life cycle, ethnic or cultural backgrounds, and literacy levels.

FSCN 4621. Nutrition and Metabolism. (4 cr. ; Student Option; Every Fall)
Carbohydrate, lipid, protein metabolism. Uses systems/holistic approach to emphasize how metabolic pathways interrelate. Prequisite courses: FSCN 4612, BIOC 3021, ANSC 3301

FSCN 4622. Nutritional Toxicology, the basic science of diet-related toxicants. (; 3 cr. ; A-F only; Every Spring)
Concepts of toxicology. Molecular mechanism behind dietary chemical-induced toxicities. Impact/risk of dietary chemicals for human health. prereq: BIOC 3021; designed for students majoring in [nutrition or food science or toxicology]

FSCN 4664. Senior Capstone: Becoming a Registered Dietitian. (1 cr. ; S-N or Audit; Every Fall)
Preparation for advancement in career as registered dietitian, including completion of dietetic internship application. Current issues in dietetics. prereq: [4665 or concurrent registration is required (or allowed) in 4665], Nutrition/dietetics subplan of nutrition major or instr consent

FSCN 4665. Medical Nutrition Therapy I. (; 3 cr. ; A-F or Audit; Every Fall)
Nutrition care process, with a focus on nutrition assessment and support, and on pathophysiology, management, and nutrition care of disease and injury, e.g. gastrointestinal (GI), pancreatic, hepatic, and pulmonary disorders; surgery/trauma/burns; and cancer. prereq: BIOC: 3021, PHYS 3051, FSCN 4612

FSCN 4666. Medical Nutrition Therapy II. (3 cr. ; A-F or Audit; Every Spring)
Nutrition care process, with a focus on pathophysiology, management, and nutrition care of diabetes mellitus, cardiovascular disorders, renal disorders, and obesity.

FSCN 4667. Dietetics Capstone and Interprofessional Education. (1 cr. ; S-N only; Every Fall)
Preparation for advancement in career as registered dietitian, including completion of dietetic internship application. Current issues in profession of dietetics; interprofessional education. prereq: Senior Nutrition Major with DPD subplan, [FScN 4665 or concurrent registration is required (or allowed) in 4665]

FSCN 4732. Food and Nutrition Management. (; 3 cr. ; A-F or Audit; Every Spring)
Financial and human resource management applied to a variety of business and institutional settings. Field trips may be required. prereq: 3732

FSCN 5122. Food Fermentations and Biotechnology. (2 cr. ; A-F only; Every Fall)
Major food fermentations important for today's food industry, with particular focus on microbiological components. Fermentations cover all major commodity food groups of dairy, cereal, meat, vegetables, fruits. prereq: MICB 3301, BIOL 4003

FSCN 5123. Molecular Biology for Applied Scientists. (1 cr. ; A-F only; Every Fall)
Half semester course. Two hours per week for 8 weeks. Basics of molecular biology/ how it has been used for biotechnological applications. Origins of molecular biology from discovery of DNA as inheritance material within cells to advent of gene cloning/sequencing technologies. prereq: MicB 3301 or FScN 2021 or instr consent

FSCN 5131. Food Quality for Graduate Credit. (3 cr. ; Student Option; Every Fall)
Management systems, statistical procedures, regulatory requirements involved with producing quality food/ingredients. Risk assessment/management, good manufacturing practices, hazard analysis critical control point (HACCP), statistical methods for process control, total quality management, food/drug laws. Prereq: Food Science Grad Student Student may select grading basis if instructor approves. A-F registration is required for class to count toward degree.

FSCN 5312. Food Analysis. (4 cr. ; A-F or Audit; Every Fall)
Analytical tools needed for investigation in Food Science/Technology, whether by food industry, governmental agencies, or universities. Application of quantitative/ qualitative physical, chemical/instrumental methods used for analysis/examination of food constituents. Sensory evaluation techniques, evaluation of methods/interpretation of results. prereq: 4112, STAT 3011

FSCN 5441. Introduction to New Product Development. (; 2 cr. ; Student Option; Fall Even, Spring Odd Year)
This course is designed to give students an overview of the product development process including management systems, team dynamics, technical problem solving, idea generation, and differences between different categories of food R&D. Prerequisites: FSCN 4112

FSCN 5461. Food Packaging. (2 cr. ; Student Option; Fall Odd Year)
Materials, principles, and procedures of packaging as they apply to food products. Emphasis is on consumer products, but the principles also apply to bulk and institutional foods and ingredients. prereq: 1102, 3102, Phys 1102 or Phys 1302

FSCN 5481. Sensory Evaluation of Food Quality. (; 2 cr. ; Student Option; Periodic Spring)
Fundamentals of sensory perception. Test designs and methods in studying sensory qualities of foods. Issues in sensory evaluation. Group research project. prereq: 3102, STAT 3011

FSCN 5521. Flavor Technology. (; 2 cr. ; Student Option; Spring Even Year)
Overview of flavor chemistry/related technology. Analytical techniques, mechanisms of flavor development (chemical/ biogenesis), off-flavors, industrial production/application of food flavorings. prereq: 4112

FSCN 5531. Grains: Introduction to Cereal Chemistry and Technology. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Origins, structure, biochemistry, and cellular properties of major cereal grains as they relate to primary processing (milling) and secondary processing (production of cereal products). prereq: Biol 1009, Chem 1022

FSCN 5541. Dairy Product Chemistry and Technology. (2 cr. ; Student Option; Fall Odd Year)
Designed for upper division Food Science undergraduate/graduate students. Physiology of milk production in ruminants. Resulting composition. Chemical, physical, microbiological properties of milk components. How milk products are manufactured. prereq: 3102, 4112, Food Science major, upper division undergraduate or graduate student

FSCN 5601. Management of Eating Disorders. (3 cr. ; Student Option; Every Fall & Spring)
Etiology, occurrence, course, treatment, prevention of eating disorders from multidisciplinary perspective. Roles and responsibilities of eating disorder treatment team members of varying types across various treatment milieus. Prereq: Junior, senior or graduate student in nutrition or health related program or instructor consent.

FSCN 5993. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FSCN 5994. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

Food Systems (FDSY)

FDSY 1016W. Growing Food & Building Community: Urban Agriculture in the Twin Cities. (WI; 3 cr. ; A-F only; Every Fall)
The capacity and support for urban agriculture is expanding globally. It is estimated that 25-30% of urban dwellers worldwide are involved in agriculture. In the future, we can expect that more of our food will be grown in urban centers. Urban farms and food businesses, food hubs, neighborhood community gardens, schoolyard and residential gardens are all part of the current urban food movement. As the first year colloquium for food systems majors, this course will integrate academic and orientation learning objectives and allow students to gain practice in systems thinking-- exhibited through in-class discussion and writing-- using urban agriculture as a framework. In this course, we will evaluate the direct and indirect benefits and challenges of urban agriculture by looking through environmental, political and social lenses. Class field trips and a service learning activity are used to demonstrate the various ways food is grown and how food may be used as a vehicle to achieve social goals. We will discuss a broad array of topics including horticultural production practices, soil health and environmental sustainability issues, social justice and food access, and public policy and regulations constraining urban farms, with an emphasis on the Minneapolis/St. Paul metro area. Students in this course will deepen their understanding of the complexity of urban food systems, while also recognize social differences of race, ethnicity and class; improve intercultural competence skills as a foundation for positive cross-cultural relationships; and gain an awareness of how urban agriculture can be a force for change.

FDSY 2101. Plant Production Systems. (3 cr. ; Student Option; Every Spring)
How food production systems fit within overall food system. Fundamentals of soils, plant nutrition, plant production metabolites as they affect food production systems. Decisions that differentiate among conventional sustainable/ organic systems. prereq: College level general biology course or Hort 1001 or instr consent

FDSY 2102. Diversity of Agricultural Production Systems. (3 cr. ; A-F only; Every Spring)
Examination of agricultural production systems, including organic, alternative, and conventional systems. History of production systems and their implications for producer lifestyles, social and natural environments, and economics at local to global scales. Includes farm visits, producer interviews, group projects, and classroom presentations and debates in addition to lectures and readings. This multidisciplinary course is offered at the University of Minnesota-St. Paul campus, West Central Research and Outreach Center and the University of Minnesota-Morris campus.

FDSY 3093. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

FDSY 3094. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FDSY 4101. Holistic Approaches to Improving Food Systems Sustainability. (; 3 cr. ; A-F only; Every Spring)
Students in this capstone course address food system sustainability challenges both in the classroom and via service-learning, where they spend 45 hours engaged with a food justice-based community organization. Requires off-campus work at the community partner site. Prerequisites: FDSY 1016W and APEC 3202; or instructor consent

Foreign Study (FOST)

FOST 1040. Study Abroad. (; 1-32 cr. [max 128 cr.] ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process.

FOST 1201. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in catalog.

FOST 1202. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Not published in catalog. prereq: dept consent

FOST 1203. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Not published in course catalog. prereq: dept consent

FOST 1204. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Not published in catalog. prereq: dept consent

FOST 1205. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Not published in catalog. prereq: dept consent

FOST 1206. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in catalog. prereq: dept consent

FOST 1207. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in catalog. prereq: dept consent

FOST 1208. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in course catalog. prereq: dept consent

FOST 1209. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in catalog. prereq: dept consent

FOST 1400. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in Cultural Diversity. prereq: dept consent

FOST 1410. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 1420. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in The Environment. prereq: dept consent

FOST 1430. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in International Perspectives. prereq: dept consent

FOST 1460. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as two Designated Themes, in Cultural Diversity and International Perspectives. prereq: dept consent

FOST 1480. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Libral Education graduation requirements as two Designated Themes, in Citizenship and Public Ethics and International Perspectives. prereq: dept consent

FOST 1490. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as two Designated Themes, in The Environment and International Perspectives. prereq: dept consent

FOST 1495. Study Abroad Course. (; 1-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 1500. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities. prereq: dept consent

FOST 1501. The United States in the Post-WW2 Era. (HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed as a survey of US history since the Second World War, from the prosperous post-war period of the 1950s to the forty years between the election of JFK in 1960 and the election of Barack Obama in 2008, which mark one of the most turbulent periods in American history. Radical changes occurred during these decades in American political, social, and cultural life, changes which still have repercussions on American society today. Through a variety of readings, seminars, discussions, and research papers, as well as screenings of feature films, documentaries, and musical albums, the course aims at evoking the four decades for the purpose of arriving at a deeper understanding of the major events that took place during the period. A complete understanding of the transformational nature of these events is not possible, however, without placing them within the context of political and social history, and most especially within the framework of the larger interpretive principles of the culture which American Studies offers.

FOST 1510. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a diversified core in Biological Science with Lab. prereq: dept consent

FOST 1520. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a diversified core in Biological Science without Lab. prereq: dept consent

FOST 1530. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Historical Perspective. prereq: dept consent

FOST 1540. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Literature. prereq: dept consent

FOST 1550. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Mathematical Thinking. prereq: dept consent

FOST 1560. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Philosophical Perspective. prereq: dept consent

FOST 1570. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Physical Science with Lab. prereq: dept consent

FOST 1580. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Physical Science without Lab. prereq: dept consent

FOST 1590. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirement as a Diversified Core in Social Science. prereq: dept consent

FOST 1600. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Visual or Performing Arts. prereq: dept consent

FOST 1710. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in Cultural Diversity. prereq: dept consent

FOST 1720. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Historical Perspective and a Designated Theme in Cultural Diversity. prereq: dept consent

FOST 1730. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as Diversified Core in Literature and Cultural Diversity. prereq: dept consent

FOST 1740. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science and Cultural Diversity. prereq: dept consent

FOST 1750. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 1760. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Biological Science with Lab and a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 1770. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Historical Perspective and a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 1780. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Philosophical Perspective and a designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 1790. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified core in Social Science and Citizenship and Public Ethics. prereq: dept consent

FOST 1800. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in The Environment. prereq: dept consent

FOST 1810. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal education graduation requirements as a Diversified Core in Biological Science with a Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 1820. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Biological Science without Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 1830. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Historical Perspective and a Designated Theme in The Environment. prereq: dept consent

FOST 1840. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the liberal Education graduation requirements as a Diversified core in Physical Science with Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 1850. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Physical Science without Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 1860. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science and a Designated Theme in The Environment. prereq: dept consent

FOST 1870. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in International Perspectives. prereq: dept consent

FOST 1880. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall & Spring)
Course taken through study abroad that counts toward the Liberal Education requirements for graduation as a Diversified Core in Historical Perspective and a Designated Theme in International Perspectives. prereq: dept consent

FOST 1890. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall & Spring)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Literature and a Designated Theme in International Perspectives. prereq: dept consent

FOST 1900. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Philosophical Perspective and a Designated Theme in International Perspectives. prereq: dept consent

FOST 1910. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science and a Designated Theme in International Perspectives. prereq: dept consent

FOST 1920. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Visual and Performing arts and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3000. Study Abroad: Outside Program. (; 0-20 cr. [max 200 cr.] ; S-N only; Every Fall, Spring & Summer)
Study abroad outside program placeholder course. prereq: dept consent

FOST 3010. Directed Study Abroad. (; 0-18 cr. [max 180 cr.] ; S-N only; Every Fall, Spring & Summer)
N/A

FOST 3020. Exchange Study Abroad. (; 0-18 cr. [max 40 cr.] ; S-N only; Every Fall, Spring & Summer)
N/A prereq: dept consent

FOST 3021. Study Abroad: Bilateral Exchange Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3022. Study Abroad: China Center Exchange Program. (0-20 cr. [max 40 cr.] ; S-N only; Every Fall, Spring & Summer)
Study abroad course

FOST 3023. Study Abroad: CSE Exchange Program. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

FOST 3024. Study Abroad: Collegiate Exchange Programs. (0-20 cr. [max 40 cr.] ; S-N only; Every Fall, Spring & Summer)
study abroad course

FOST 3025. Study Abroad: Scholarship / IRSEP Exchange Program. (0-20 cr. [max 40 cr.] ; S-N only; Every Fall, Spring & Summer)
Study abroad course

FOST 3026. Study Abroad: ISEP Exchange Program. (0-20 cr. [max 40 cr.] ; S-N only; Every Fall, Spring & Summer)
Study abroad course

FOST 3027. Study Abroad: Departmental Affiliated Program. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad placeholder course.

FOST 3028. Study Abroad: AC China Flagship Capstone Year Program. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad placeholder course

FOST 3029. Study Abroad: Study Abroad in Dublin. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3032. Study Abroad: Study Abroad in Jordan. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3033. Study Abroad: Summer Internships in Panama. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3034. Study Abroad: Study & Intern in Barcelona. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3035. Study Abroad: SOR CAPA Barcelona. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3036. Study Abroad: SOR CET. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3037. Study Abroad: University Study in Italy. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3038. Study Abroad: SOR CAPA Hong Kong. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3039. Study Abroad: Study & Intern in Hong Kong. (1-20 cr. ; Student Option; Every Fall, Spring & Summer)
Similar to many already-existing courses (ex: FOST 3245 - Study Abroad: Morocco Program), this is a course shell that will be used as a placeholder course for the number of credits planned to take abroad that helps to ensure students maintain their student status and allows financial aid eligibility. Upon the student's return at the end of the program, this course will be removed from the student's record and replaced with actual, individual courses, credits and grades taken while abroad.

FOST 3040. Study Abroad. (; 1-32 cr. ; A-F only; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3050. Study Abroad Through UMN System. (; 0-32 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad through program sponsored by Duluth,Morris, or Crookston campus. prereq: dept consent

FOST 3060. Global Seminar. (; 3 cr. [max 9 cr.] ; A-F only; Every Spring & Summer)
Short term study abroad program during May Session or winter break.

FOST 3110. HECUA-Sponsored Study Abroad Programs. (; 1-20 cr. [max 80 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad through Higher Education Consortium for Urban Affairs. prereq: dept consent

FOST 3111. Study Abroad: International Chinese Language Program. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad placeholder course for new affiliate program, ICLP.

FOST 3115. Study Abroad: Alliance Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3120. AESOP/CIC-Study Abroad Programs. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad through Committee on Institutional Cooperation. prereq: dept consent

FOST 3125. Study Abroad: USIT Irish Studies Summer School Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3130. IES-Study Abroad Program. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad through Institute for the International Education of Students (IES). prereq: dept consent

FOST 3135. Study Abroad: CET Programs. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3140. CIEE-Study Abroad Program. (; 1-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad through Council on International Educational Exchange. prereq: dept consent

FOST 3150. Butler/IFSA: Study Abroad Program. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad sponsored by Butler University/ IFSA and cosponsored by the University of Minnesota. prereq: dept consent

FOST 3160. Arcadia/CEA: Study Abroad Program. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad sponsored by Arcadia College/ CEA and cosponsored by the University of Minnesota. prereq: dept consent

FOST 3170. Study Abroad: Integrated Studies in Freiburg. (; 0-20 cr. [max 80 cr.] ; A-F only; Every Fall & Spring)
Study Abroad placeholder course for the Integrated Studies in Freiburg program.

FOST 3175. Study Abroad: AC China Flagship Capstone Year Program. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

FOST 3180. Bologna Cooperative Studies Program, Italy. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Study abroad through Bologna Cooperative Studies Program at the University of Bologna, Italy. prereq: dept consent

FOST 3201. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3202. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3203. Study Abroad. (; 1-32 cr. [max 1 cr.] ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3204. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3205. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3206. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3207. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3208. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3209. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3210. Study Abroad. (; 0-20 cr. [max 80 cr.] ; Student Option; Every Fall, Spring & Summer)
TBD

FOST 3211. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Course used to grant credit for a new study abroad course or program that, by the time recruiting begins, has not had time to go through the normal approval process. prereq: dept consent

FOST 3212. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in catalog. prereq: dept consent

FOST 3213. Study Abroad. (; 1-32 cr. ; Student Option; Every Fall, Spring & Summer)
Not published in course catalog. prereq: dept consent

FOST 3214. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in course catalog. prereq: dept consent

FOST 3215. Study Abroad. (; 1-32 cr. ; Student Option; Periodic Fall)
Not published in catalog. prereq: dept consent

FOST 3220. Study Abroad: SIT Program. (; 1-20 cr. [max 60 cr.] ; A-F only; Every Fall & Spring)
TBD

FOST 3225. Study Abroad: Language Immersion in China. (; 0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 3230. Study Abroad: School for Field Studies (SFS) Program. (; 1-20 cr. [max 60 cr.] ; A-F only; Every Fall & Spring)
TBD

FOST 3235. Study Abroad: University Study in Ireland. (; 0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 3240. University Study in Norway. (; 1-20 cr. [max 60 cr.] ; A-F only; Every Fall & Spring)
TBD

FOST 3245. Study Abroad: Arabic Language and Culture in Morocco Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3255. Study Abroad: Language and Culture in Buenos Aires Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3265. Study Abroad: Florence Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3270. Denmark's International Study Program. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad in Denmark or Iceland through Denmark's international study program. prereq: dept consent

FOST 3275. Study Abroad: Mexico Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3285. Study Abroad in Rome Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3290. University Study in New Zealand. (; 1-20 cr. [max 60 cr.] ; A-F only; Every Fall & Spring)
TBD

FOST 3295. Study and Internships in Sydney Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3305. Study Abroad: Turkey. (; 0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 3306. Study Abroad: Study and Internships in Madrid. (0-20 cr. [max 60 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad placeholder course.

FOST 3310. Study Abroad in Montpellier. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Semester or year at Universit? Paul Val?ry, Montpellier, France, sponsored by Global Campus and the Department of French and Italian. Students take regular courses or special courses for foreigners. All courses taught entirely in French by Paul Val?ry faculty. Many disciplines available. prereq: dept consent

FOST 3315. Study Abroad: MSID Ecuador Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3316. Study Abroad: Health and Society in Ecuador. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad placeholder course for the new program, "Health and Society in Ecuador"

FOST 3320. International Program in Toledo, Spain. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Study through International Program of Spanish, European, and Latin American Studies in Toledo, Spain. prereq: dept consent

FOST 3325. Study Abroad: MSID India. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3326. Study Abroad: MSID Thailand. (0-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

FOST 3330. Study Abroad in Venezuela. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
Semester or summer study in Venezuela through a University of Minnesota program administered by Learning Abroad Center and VENUSA. Spanish language, Venezuelan/Latin American studies. prereq: dept consent

FOST 3335. Study Abroad: MSID Kenya. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3340. Study Abroad in London. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall, Spring & Summer)
TBD

FOST 3345. Study Abroad: MSID Senegal. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3350. University Study in Australia. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Not listed in catalog.

FOST 3355. Study Abroad: University Study in Israel Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3360. University Study in the United Kingdom. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Not printed in catalog.

FOST 3365. Study Abroad: University Study in South Africa Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3370. Study Abroad Through InterStudy. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Study abroad program cosponsored by InterStudy and the University.

FOST 3375. Study Abroad: University Study in South Korea Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3380. Study Abroad: American University Cairo. (; 0-21 cr. [max 42 cr.] ; A-F only; Every Fall, Spring & Summer)
Placeholder course for students studying at American University Cairo.

FOST 3385. Study Abroad in Tanzania Program. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3390. Study Abroad: GlobaLinks, AustraLearn. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Study abroad program sponsored by Australearn and approved by University of Minnesota.

FOST 3391. Study Abroad: GlobaLinks, AsiaLearn. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)
Study abroad program sponsored by AsiaLearn and approved by University of Minnesota.

FOST 3392. Study Abroad: GlobaLinks, EuroLearn. (; 1-20 cr. [max 120 cr.] ; A-F only; Every Fall & Spring)

Study abroad program sponsored by EuroLearn and approved by University of Minnesota.

FOST 3400. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in Cultural Diversity prereq: dept consent

FOST 3410. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 3420. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in the Environment. prereq: dept consent

FOST 3430. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Designated Theme in International Perspectives. prereq: dept consent

FOST 3460. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as two Designated Themes, in Cultural Diversity and International Perspectives. prereq: dept consent

FOST 3480. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as two Designated Themes, in Citizenship and Public Ethics and International Perspectives. prereq: dept consent

FOST 3490. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as two Designated Themes, in The Environment and International Perspectives. prereq: dept consent

FOST 3495. Study Abroad Course. (; 1-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 3500. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities. prereq: dept consent

FOST 3510. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
N/A prereq: dept consent

FOST 3520. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a diversified core in Biological Science without Lab. prereq: dept consent

FOST 3530. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as Diversified Core in Historical Perspective. prereq: dept consent

FOST 3540. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Literature. prereq: dept consent

FOST 3550. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Mathematical Thinking. prereq: dept consent

FOST 3560. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Philosophical Perspective. prereq: dept consent

FOST 3570. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Physical Science with Lab. prereq: dept consent

FOST 3580. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Physical Science without Lab. prereq: dept consent

FOST 3590. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science. prereq: dept consent

FOST 3600. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Visual or Performing Arts. prereq: dept consent

FOST 3710. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in Cultural Diversity. prereq: dept consent

FOST 3720. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Historical Perspective and a Designated Theme in Cultural Diversity. prereq: dept consent

FOST 3730. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Study Abroad prereq: dept consent

FOST 3740. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science and Cultural Diversity. prereq: dept consent

FOST 3750. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 3760. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Biological Science With Lab and a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 3770. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified core in Historical Perspective and a Designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 3780. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Philosophical Perspective and a designated Theme in Citizenship and Public Ethics. prereq: dept consent

FOST 3790. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)

Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science and Citizenship and Public Ethics. prereq: dept consent

FOST 3800. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in The Environment. prereq: dept consent

FOST 3810. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal education graduation requirements as a Diversified Core in Biological Science with a Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 3820. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Biological Science without Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 3830. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Historical Perspective and a Designated Theme in The Environment. prereq: dept consent

FOST 3840. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the liberal Education graduation requirements as a Diversified Core in Physical Science with Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 3850. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Physical Science without Lab and a Designated Theme in The Environment. prereq: dept consent

FOST 3860. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a diversified Core in Social Science and a Designated Theme in The Environment. prereq: dept consent

FOST 3870. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Arts and Humanities and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3880. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education requirements for graduation as a Diversified Core in Historical Perspective and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3890. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Literature and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3896. Virtual International Internship. (GP; 4 cr. ; A-F only; Every Fall, Spring & Summer)
This course is designed to provide students with an opportunity to learn about the virtual international work environment by critically examining a professional, remote experience abroad through an intercultural lens. A key element to this course is to deepen students? knowledge of their internship placement country?s professional norms and cultural context in comparison to other students? internship placement countries, as well as the United States, and understand how COVID-19 has impacted these environments. We will interrogate how this knowledge will influence their behavior in their society and the world. Students will also enhance their understanding of their chosen field using a global mindset. The course is designed to guide students in the internship experience and create a foundation for a successful professional career as well as working to understand and articulate career skill outcomes. In addition to gaining a cross-cultural comparative view on work, the topics and assignments will deepen students? insights about themselves, professional expectations, and being successful in the virtual workplace. Students are expected to make a valuable contribution to the virtual internship placement through the completion of projects and tasks guided by their internship supervisor in the placement country. This will require students to employ intercultural communication skills in a professional, virtual setting while critically examining their own worldview.

FOST 3900. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Philosophical Perspective and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3910. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified Core in Social Science and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3920. Study Abroad. (; 1-10 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Course taken through study abroad that counts toward the Liberal Education graduation requirements as a Diversified core in Visual and Performing Arts and a Designated Theme in International Perspectives. prereq: dept consent

FOST 3991. Study Abroad: SOR London Semester & Quarter Programs. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3993. Study Abroad: SOR CAPA Sydney. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3994. Study Abroad: SOR CAPA Australian Catholic University. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3995. Study Abroad: SOR DIS. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3996. Study Abroad: SOR GlobaLinks. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3997. Study Abroad: SOR Rome. (; 0-20 cr. [max 40 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course

FOST 3998. Study Abroad: SOR SFS. (0-20 cr. [max 60 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 3999. Study Abroad. (; 1-20 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad for-credit internship course.

FOST 5000. Study Abroad. (0-18 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad registration. prereq: dept consent

FOST 5010. Study Abroad Directed Study placeholder course. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FOST 5020. Global Experience Program. (; 0-6 cr. [max 18 cr.] ; Student Option; Every Fall & Summer)
The course is used to award credit for work successfully completed on the Global Experience Program study abroad internship program. Evaluation standards and work load are determined by the graduate faculty member who signs the Global Experience Program

learning contract required of each participant. Number of contact hours varies from location to location. prereq: Must have graduate student status

Forest and Natural Res. Mgmt. (FNRM)

FNRM 1001. Orientation and Information Systems. (; 1 cr. ; A-F or Audit; Every Fall)
Forest resources, recreation resource management, urban forestry programs. Forestry and natural resource careers. Qualification requirements for government positions, competencies, internships, and experiences to compete for jobs in industry. Course planning, mentoring, alumni contacts. Leadership, organization, process. Lab equipment/software, GUIs, the Internet, spreadsheets, Lumina, periodical indexes.

FNRM 1101. Dendrology: Identifying Forest Trees and Shrubs. (; 3 cr. ; Student Option; Every Fall)
Identification nomenclature, classification, and distribution of common/important forest trees/shrubs. Use of keys. Field/lab methods of identification.

FNRM 2101. Identifying Forest Plants. (; 1 cr. ; A-F or Audit; Every Summer)
Field identification of common northwoods trees, shrubs, and nonwoody vascular plants. Emphasizes concept of plant communities, soil site relationships, and wildlife values. Taught at Cloquet Forestry Center.

FNRM 2102. Northern Forests Field Ecology. (; 2 cr. ; A-F or Audit; Every Fall)
Field examination of natural history of northern/boreal forests with respect to soils, ecological characteristics of trees, community-environment relationships, stand development, succession, and regeneration ecology. Taught at the Cloquet Forestry Center. prereq: Biol 1001 or Biol 1009

FNRM 2104. Measuring Forest Resources. (; 1 cr. ; A-F or Audit; Every Summer)
Introduction to land survey, tree/forest stand measurement (mensuration), and forest sampling techniques. Taught at Cloquet Forestry Center.

FNRM 3101. Park and Protected Area Tourism. (; 3 cr. ; A-F or Audit; Fall Odd Year)
Tourism is a significant industry locally, nationally, and internationally. Park and protected area attractions are among the most visited but also the most vulnerable attractions. This course is designed to familiarize you with the basic concept of park and protected area tourism, including cultural and ecotourism, and then develop your expertise to plan and evaluate sustainable tourism development and operations. Accordingly, you will complete assignments that apply the knowledge gained to planning and evaluation activities. This course is offered partially on-line. COURSE OBJECTIVES By the end of the class you will be able to: 1.Differentiate and appreciate the complexities involved with defining and developing nature, eco, heritage, geo-, park and protected, cultural and "sustainable tourism." 2.Identify specific social, economic, and environmental impacts associated with park and protected area tourism, how to measure them, and methods to minimize the negative and maximize the positive impacts. 3.Analyze domestic and international case studies of park and protected area tourism. 4.Critically evaluate park and protected area tourism services and effective management and planning. 5. Create elements of a business plan for park and protected area tourism operations that emphasize sustainability.

FNRM 3104. Forest Ecology. (; 4 cr. ; A-F or Audit; Every Fall)
Form and function of forests as ecological systems. Characteristics and dynamics of species, populations, communities, landscapes, and ecosystem processes. Examples applying ecology to forest management. Weekly discussions focus on research topics in forest ecology, exercises applying course concepts, and current issues in forest resource management. Required weekend field trip. Prereq: Biol 1001, 1009 or equivalent introductory biology course; 1 semester college chemistry recommended.

FNRM 3114. Hydrology and Watershed Management. (; 3 cr. ; Student Option; Every Fall)
Hydrologic cycle and water processes in upland/riparian systems. Applications of hydrological concepts to evaluate impacts of forest and land management activities on water yield, streamflow, groundwater erosion, sedimentation, and water quality. Concepts, principles, and applications of riparian/watershed management. Regional/ national/global examples. Forest ecosystems. prereq: [[BIOL 1001 or BIOL 1009], [[CHEM 1015, CHEM 1017] or CHEM 1021], MATH 1151] or instr consent

FNRM 3131. Geographical Information Systems (GIS) for Natural Resources. (TS; 4 cr. ; A-F only; Every Fall & Spring)
Spatial data development/analysis in science/ management of natural resources. Data structures/sources/collection/quality. Geodesy, map projections, spatial/tabular data analysis. Digital terrain analysis, cartographic modeling, modeling perspectives, limits of technology. Lab exercises. Both onsite and fully online options for course enrollment. prereq: Soph or jr or sr or UHP fr

FNRM 3203. Forest Fire and Disturbance Ecology. (3 cr. ; A-F or Audit; Every Spring)
Ecology, history, management, control of fire, wind, insect infestation, deer browsing, other disturbances in forests, including disturbance regimes of boreal, northern hardwood, savannas of North America. Influence of disturbance on wildlife habitat, urban/wildland interfaces, forest management, stand/landscape dynamics. Tree mortality in fires, successional patterns created by fires, interactions of life history traits of plants with disturbances.

FNRM 3204. Landscape Ecology and Management. (; 3 cr. ; A-F or Audit; Every Fall)
Introduction to landscape ecology at different scales in time/space. Development/implications of broad-scale patterns of ecological phenomena, role of disturbance in ecosystems, characteristic spatial/temporal scales of ecological events. Principles of landscape ecology as framework for landscape research, analysis, conservation, and management. prereq: Ecology course

FNRM 3205. Productivity and Ecology of Forest Soils. (3 cr. ; A-F only; Fall Even Year)
Forest soils are fundamental to the development and function of forested ecosystems. This course will focus on soil-site factors affecting plant and wildlife communities, site quality estimation, site modification and enhancement, and the effects of forest management and other human-related disturbances on forest soil functions. Prior coursework in soils, hydrology, and forest management will enhance student learning, but are not required for successful completion of the course.

FNRM 3206. Park and Protected Area Management Field Studies. (2 cr. [max 3 cr.] ; A-F only; Every Fall)
This course is designed to be a directed field study of park and protected area management including observation of and training in (1) recreation planning and visitor management, (2) cultural resource management, (3) natural resource management, (4) nature-based tourism management, and (5) resource interpretation and communication across local, state, federal and tribal park and protected areas in northern Minnesota. prereq: Sophomore status or higher

FNRM 3218. Measuring and Modeling Forests. (; 3 cr. ; A-F or Audit; Every Spring)
Sampling design, survey techniques to assess resource conditions. Applying metrics/sampling methods to forest vegetation. Calculating tree/ stand volume. Modeling approaches. Case studies of modeling to project future growth. Landscape processes, characterization, modeling. prereq: [ESPM 3012 or STAT 3011], MATH 1151

FNRM 3262. Remote Sensing and Geospatial Analysis of Natural Resources and Environment. (3 cr. ; Student Option; Every Fall & Spring)
Introductory principles and techniques of remote sensing and geospatial analysis applied to mapping and monitoring land and water resources from local to global scales. Examples of applications include: Land cover mapping and change detection, forest and natural resource inventory, water quality monitoring, and global change analysis. The lab provides hands-on experience working with satellite, aircraft, and drone imagery, and image processing methods and software. Prior coursework in Geographic Information Systems and introductory Statistics is recommended. Prereq: None, but prior coursework in GIS and Statistics is recommended.

FNRM 3362. Drones: Data, Analysis, and Operations. (3 cr. ; Student Option; Every Spring)

This course explores principles and techniques of Unmanned Aircraft Systems (UAS, also 'drones'), applied to natural resource and environmental issues. The course provides hands-on experience with UAS vehicles, sensors, imagery, and software. Course topics include: UAS flight characteristics, regulations/ safety, mission planning, flight operations, data collection, image analysis, and applications. Examples of UAS applications to be explored include forest and natural resource inventory, wetland monitoring, and land cover mapping. Prior coursework in Geographic Information Systems is recommended. Prereq: None, but prior coursework in GIS is recommended.

FNRM 3411. Managing Forest Ecosystems: Silviculture. (3 cr. ; A-F only; Every Fall)
Management of forest ecosystems for sustaining ecological integrity, soil productivity, water quality, wildlife habitat, biological diversity, commodity production in landscape context. Silvics, forest dynamics, disturbances, regeneration, restoration, silvicultural systems. Ramifications of management choices. Weekend field trip. FEMC track students should take FNRM 5413 concurrently

FNRM 3431. Timber Harvesting and Road Planning. (; 2 cr. ; Student Option; Every Spring)
Introduction to forest operations. Terminology, basic engineering, equipment and harvesting system options, productivity/costs. Relationship to forest management and silviculture. Road planning, forest management guidelines, approaches for mitigating potential impacts to forest resources. Environmental implications of method/equipment choices. Selling timber. Sale design, layout, and administration. One all-day field trip. prereq: FNRM 3411 or instr consent

FNRM 3462. Advanced Remote Sensing and Geospatial Analysis. (3 cr. [max 6 cr.] ; Student Option; Every Spring)
This course builds on the introductory remote sensing class, FNRM 3262/5262. It provides a detailed treatment of advanced remote sensing and geospatial theory and methods including Object-Based Image Analysis (OBIA), lidar processing and derivatives, advanced classification algorithms (including Random Forest, Neural Networks, Support Vector Machines), biophysics of remote sensing, measurements and sensors, data transforms, data fusion, multi-temporal analysis, and empirical modeling. In-class and independent lab activities will be used to apply the course topics to real-world problems. Prior coursework in Geographic Information Systems, remote sensing, and statistics is necessary. prereq: FNRM 3262/5262 or instr consent

FNRM 3471. Forest Management Planning. (; 3 cr. ; A-F or Audit; Every Fall)
Management science as applied to forest decision-making to help develop better forest management plans. Helps students develop a basic understanding of common analytical tools from operations research and how they are applied to forestry problems to help explore many potential solutions. Also reviews traditional approaches based on simulation. Emphasizes trade-off information, interpretation of model results, and linkages between stand-level economic analysis and forest-wide planning. Reviews recent modeling efforts in Minnesota. Includes synthesis of information from multiple natural resource disciplines. Guest speakers demonstrate value of analyses in planning. Emphasizes homework assignments with some group work. An individual project requires an informal class presentation. prereq: recommended ESPM 3261 and [3218 or 3411]

FNRM 3480. Topics in Natural Resources. (; 1-3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Lectures in special fields of natural resources given by visiting scholar or faculty member. Topics specified in Class Schedule.

FNRM 3501. Arboriculture: Selection and Maintenance of Trees. (; 3 cr. ; Student Option; Every Spring)
Selection, growth, propagation, and maintenance of trees for urban spaces. Tree selection, site preparation, plant health care management. Prevention, diagnosis, and remediation of urban tree risks such as insects, pathogens, pollution, development, and climate change.

FNRM 3562. Field Remote Sensing. (; 1 cr. ; Student Option; Every Fall)
This course is intended to be taken with, or after, the introductory remote sensing class, FNRM 3262/5262. It builds on the introductory course by providing a field context to the remote sensing discipline. We will focus on field methods and associated analyses that are typical in using and applying imagery and other spatial data. We will use a variety of remote sensing imagery, maps, field data collection tools, and software. Students will learn in an active, hands-on, way through multiple small-group field exercises. This course includes two eight-hour weekend field sessions.

FNRM 3993. Directed Study. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: Department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements

FNRM 3994. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

FNRM 4232W. Managing Recreational Lands. (WI; 4 cr. ; A-F or Audit; Every Spring)
Most of us participate in some form of outdoor recreation: hiking, hunting, riding all-terrain vehicles, or simply enjoying nature. Managing for outdoor recreation on public lands is mandated by federal law and an integral part of natural resource management. In this class, we'll learn why and how agencies manage recreation at the federal level, the management frameworks that guide this work, and apply management principles to an actual federal property in Minnesota. This course is designed to provide students with an understanding of the principles and practices of outdoor recreation management. Specific objectives are to: 1)compare and contrast federal recreation land management policies & organizations, 2)develop and demonstrate an understanding of conceptual frameworks for recreation resource and visitor use management, 3)evaluate visitor caused impacts to resources and to visitor experiences, 4)understand and apply management tools designed to reduce recreation- related impacts and conflicts, and 5)demonstrate an understanding of course material through exams & applied assignments.

FNRM 4501. Urban Forest Management: Managing Greenspaces for People. (; 3 cr. ; Student Option; Every Spring)
Management concepts for green infrastructure of cities, towns, and communities. Urban forest as a social/biological resource. Emphasizes management of urban forest ecosystem to maximize benefits to people. Tree selection, risk assessment, cost-benefit analysis, landscape planning, values, perceptions. How urban forestry can be a tool to improve community infrastructure.

FNRM 4511. Field Silviculture. (; 2 cr. ; A-F only; Every Spring)
Collection of field data to prepare/write silvicultural prescriptions for regeneration, thinning, and harvesting in context of landscape, watershed, and wildlife habitat issues. Field exercises in forest entomology, pathology, tree improvement, and non-timber forest products. Tree planting. Marking stands for harvest. Taught at the Cloquet Forestry Center. Field trips to forests managed by state/ industry. prereq: FNRM 3411

FNRM 4515. Field Resource Survey. (; 1 cr. ; Student Option; Every Spring)
Field applications of sampling/measurement methods for inventory and assessment of forest and other natural resources. Offered at the Cloquet Forestry Center. prereq: FNRM 3218 or instructor consent

FNRM 4521. Field Timber Harvesting and Road Planning. (; 2 cr. ; Student Option; Every Spring)
Design, layout, and administration of timber sales. Forest road planning and design. Timber appraisal, forest management guidelines. Field

visits to timber harvesting and road planning sites with private organizations. Develop a harvest plan for landowner's property. Taught at the Cloquet Forestry Center. prereq: FNRM 3411 and 3431, or instructor consent.

FNRM 5101. Park and Protected Area Tourism. (; 3 cr. ; A-F or Audit; Fall Odd Year)
Tourism is a significant industry locally, nationally, and internationally. Park and protected area attractions are among the most visited but also the most vulnerable attractions. This course is designed to familiarize you with the basic concept of park and protected area tourism, including cultural and ecotourism, and then develop your expertise to plan and evaluate sustainable tourism development and operations. Accordingly, you will complete assignments that apply the knowledge gained to planning and evaluation activities. This course is offered partially online. COURSE OBJECTIVES By the end of the class you will be able to: 1. Differentiate and appreciate the complexities involved with defining and developing nature, eco, heritage, geo-, park and protected, cultural & "sustainable tourism." 2. Identify specific social, economic, and environmental impacts associated with park and protected area tourism, how to measure them, and methods to minimize the negative and maximize the positive impacts. 3. Analyze domestic and international case studies of park and protected area tourism. 4. Critically evaluate park and protected area tourism services and effective management and planning. 5. Create elements of a business plan for park and protected area tourism operations that emphasize sustainability.

FNRM 5104. Forest Ecology. (; 4 cr. ; A-F or Audit; Every Fall)
Form and function of forests as ecological systems. Characteristics and dynamics of species, populations, communities, landscapes, and ecosystem processes. Examples applying ecology to forest management. Weekly discussions on research topics, exercises, and current issues in forest resource management. Required weekend field trip. Introductory biology course recommended.

FNRM 5114. Hydrology and Watershed Management. (; 3 cr. ; Student Option; Every Fall)
Hydrologic cycle and water processes in upland/riparian systems. Applications of hydrological concepts to evaluate impacts of forest and land management activities on water yield, streamflow, groundwater erosion, sedimentation, and water quality. Concepts, principles, and applications of riparian/watershed management. Regional/national/global examples. Forest ecosystems.

FNRM 5131. Geographical Information Systems (GIS) for Natural Resources. (4 cr. ; A-F or Audit; Every Fall)
Geographic information systems (GIS), focusing on spatial data development and analysis in the science and management of natural resources. Basic data structures, sources, collection, and quality; geodesy and map projections; spatial and tabular data analyses; digital elevation data and terrain analyses; cartographic modeling and layout. Lab exercises provide practical experiences complementing theory covered in lecture. prereq: Grad student or instr consent

FNRM 5153. Forest Hydrology & Watershed Biogeochemistry. (3 cr. ; Student Option; Spring Odd Year)
This rigorous course examines hydrology and biogeochemical cycling in forested watersheds. Topics include role of forests in hydrologic processes (precipitation, runoff generation, and streamflow) and exports (sediment, carbon, and nitrogen). Readings from primary literature, active discussion participation, research/review paper. prereq: [Basic hydrology course, one course in ecology, and one course in chemistry [upper div or grad student]] or instr consent

FNRM 5161. Northern Forest Field Course. (; 2 cr. ; A-F or Audit; Every Summer)
Field identification of common trees, shrubs, and nonwoody vascular plants. Plant communities, soil site relationships, wildlife values. Natural history of northern/boreal forests in terms of soils, ecological characteristics of trees, community-environment relationships, stand development, succession, and regeneration ecology. Land survey, tree/forest stand measurement, forest sampling techniques. Taught at the Cloquet Forestry Center.

FNRM 5203. Forest Fire and Disturbance Ecology. (3 cr. ; A-F or Audit; Every Spring)
Ecology, history, management, control of fire, wind, insect infestation, deer browsing, other disturbances in forests, including disturbance regimes of boreal, northern hardwood, savannas of North America. Influence of disturbance on wildlife habitat, urban/wildland interfaces, forest management, stand/landscape dynamics. Tree mortality in fires, successional patterns created by fires, interactions of life history traits of plants with disturbances. prereq: Grad student or instr consent

FNRM 5204. Landscape Ecology and Management. (; 3 cr. ; A-F or Audit; Every Fall)
Introduction to landscape ecology at different scales in time/space. Development/implications of broad-scale patterns of ecological phenomena, role of disturbance in ecosystems. Characteristic spatial/temporal scales of ecological events. Principles of landscape ecology as framework for landscape research, analysis, conservation, and management. prereq: Grad student or instr consent

FNRM 5205. Productivity and Ecology of Forest Soils. (3 cr. ; A-F only; Fall Even Year)
Forest soils are fundamental to the development and function of forested ecosystems. This course will focus on soil-site factors affecting plant and wildlife communities, site quality estimation, site modification and enhancement, and the effects of forest management and other human-related disturbances on forest soil functions. Prior coursework in introductory soils, silviculture, forest hydrology, biogeochemistry, and applied forest ecology are strongly recommended. prereq: grad student or instructor consent

FNRM 5206. Park and Protected Area Management Field Studies. (2 cr. [max 3 cr.] ; A-F only; Every Fall)
This course is designed to be a directed field study of park and protected area management including observation of and training in (1) recreation planning and visitor management, (2) cultural resource management, (3) natural resource management, (4) nature-based tourism management, and (5) resource interpretation and communication across local, state, federal and tribal park and protected areas in northern Minnesota. prereq: grad student

FNRM 5216. Geodesy, Coordinate, and Surveying Calculations for GIS Professionals. (1 cr. ; Student Option; Every Fall)
Where exactly are we? How do we define and refine geographic locations on a lumpy, spinning, unstable planet? On course completion students will understand concepts and practices that are at the very foundation of GIS: geodesy and geographic projections. They will have a working knowledge of geodetic datums and datum evolution, be able to make common geodetic and coordinate geometry calculations, and solve common problems that arise during datum and coordinate system conversions while engaged in the practice of GIS.

FNRM 5218. Measuring and Modeling Forests. (; 3 cr. ; A-F or Audit; Every Spring)
General sampling design and survey techniques to assess current resource conditions. Application of metrics/sampling methods to forest vegetation. Calculation of tree/stand volume, selection of modeling approaches. Case studies of modeling to project future growth. Landscape processes, characterization, and modeling.

FNRM 5228. Advanced Topics in Assessment and Modeling of Forests. (; 3 cr. ; A-F or Audit; Fall Even Year)
Application of recently developed mathematics, computer science, and statistics methodologies to natural resource functioning, management, and use problems. Specific topics, software, and methodologies vary. prereq: 3218, Math 1272, Stat 5021

FNRM 5232. Managing Recreational Lands. (; 4 cr. ; A-F or Audit; Every Spring)
Most of us participate in some form of outdoor recreation: hiking, hunting, riding all-terrain vehicles, or simply enjoying nature. Managing for outdoor recreation on public lands is mandated by federal law and an integral part of natural resource management. In this class, we?ll learn why and how agencies manage recreation at the federal level, the management frameworks that guide this work, and apply management principles to an actual federal property in Minnesota. This course is designed to provide students with an understanding of the principles and practices of outdoor recreation management. Specific objectives are to: 1) Compare and contrast federal recreation land management policies and organizations, 2) Develop and demonstrate an understanding of conceptual frameworks for recreation

resource and visitor use management, 3) Evaluate visitor caused impacts to resources and to visitor experiences, 4) Understand and apply management tools designed to reduce recreation- related impacts and conflicts, and 5) Demonstrate an understanding of course material through exams and applied assignments. prereq: Grad student or instr consent

FNRM 5259. Visitor Behavior Analysis. (; 3 cr. ; Student Option; Every Fall)
Recreation, leisure, and tourism are significant parts of the world, national, and state economies. Understanding visitor behavior is important and has significant implications for organizations, agencies, and businesses related to parks, tourism destinations, and museums. In this class, you will learn to apply both social science theory and methods to understand consumers, with an emphasis on visitors to parks and protected areas. You will immediately apply your learning of survey development, interviewing, observation and content analysis to real-word situations in class projects. This is an online course.

FNRM 5262. Remote Sensing and Geospatial Analysis of Natural Resources and Environment. (3 cr. ; Student Option; Every Fall & Spring)
Introductory principles and techniques of remote sensing and geospatial analysis applied to mapping and monitoring land and water resources from local to global scales. Examples of applications include: Land cover mapping and change detection, forest and natural resource inventory, water quality monitoring, and global change analysis. The lab provides hands-on experience working with satellite, aircraft, and drone imagery, and image processing methods and software. Prior coursework in Geographic Information Systems and introductory Statistics is recommended. prereq: Grad student or instr consent

FNRM 5264. Advanced Forest Management Planning. (; 3 cr. ; Student Option; Every Fall)
Modeling tools for forest planning to better integrate forest resource conditions/uses and better understand trade-offs and potential management strategies. Analyzing facets of forest management that add complexity including multi-market interactions, temporal detail, spatial objectives, planning under uncertainty, and recourse strategies. Optimization models, decomposition and heuristic techniques designed to capitalize on characteristics of forestry problems. Case studies involving recent or ongoing large-scale applications. Student projects with opportunity to tailor to student interests or expertise.

FNRM 5362. Drones: Data, Analysis, and Operations. (3 cr. [max 6 cr.] ; Student Option; Every Spring)
This course explores principles and techniques of Unmanned Aircraft Systems (UAS, also "drones"), applied to natural resource and environmental issues. The course provides hands-on experience with UAS vehicles, sensors, imagery, and software. Course topics include: UAS flight characteristics, regulations/ safety, mission planning, flight operations, data collection, image analysis, and applications. Examples of UAS applications to be explored include: forest and natural resource inventory, wetland monitoring, and land cover mapping. Prior coursework in Geographic Information Systems is recommended. Prereq: grad student or instr consent

FNRM 5411. Managing Forest Ecosystems: Silviculture. (3 cr. ; A-F only; Every Fall)
Management of forest ecosystems for sustaining ecological integrity, soil productivity, water quality, wildlife habitat, biological diversity, commodity production in landscape context. Silvics, forest dynamics, disturbances, regeneration, restoration, silvicultural systems. Ramifications of management choices. Weekend field trip. FEMC track students should take FNRM 5413 concurrently. prereq: grad student

FNRM 5413. Managing Forest Ecosystems: Silviculture Lab. (1 cr. ; A-F only; Every Fall)
Development of silvicultural prescriptions to achieve various landowner objectives. Timber cruise, growth/yield simulations, stand density management diagrams, thinning schedules, use of forest vegetation simulator. Field trips, computer labs, lectures. prereq: FNRM major or minor or grad student; FNRM-FEMC track students should take FNRM 3411/5411 concurrently or instructor consent

FNRM 5431. Timber Harvesting and Road Planning. (; 2 cr. ; Student Option; Every Spring)
Introduction to forest operations. Terminology, basic engineering, equipment and harvesting system options, productivity/costs. Relationship to forest management and silviculture. Road planning, forest management guidelines, approaches for mitigating potential impacts to forest resources. Environmental implications of method/equipment choices. Selling timber. Sale design, layout, and administration. One all-day field trip. prereq: grad student

FNRM 5462. Advanced Remote Sensing and Geospatial Analysis. (3 cr. ; Student Option; Every Spring)
This course builds on the introductory remote sensing class, FNRM 3262/5262. It provides a detailed treatment of advanced remote sensing and geospatial theory and methods including Object-Based Image Analysis (OBIA), lidar processing and derivatives, advanced classification algorithms (including Random Forest, Neural Networks, Support Vector Machines), biophysics of remote sensing, measurements and sensors, data transforms, data fusion, multi-temporal analysis, and empirical modeling. In-class and independent lab activities will be used to apply the course topics to real-world problems. Prior coursework in Geographic Information Systems, remote sensing, and statistics is necessary. Prereq: grad student or instr consent

FNRM 5471. Forest Management Planning. (; 3 cr. ; A-F or Audit; Every Fall)
Management science as applied to forest decision-making to help develop better forest management plans. Helps students develop a basic understanding of common analytical tools from operations research and how they are applied to forestry problems to help explore many potential solutions. Also reviews traditional approaches based on simulation. Emphasizes trade-off information, interpretation of model results, and linkages between stand-level economic analysis and forest-wide planning. Reviews recent modeling efforts in Minnesota. Includes synthesis of information from multiple natural resource disciplines. Guest speakers demonstrate value of analyses in planning. Emphasizes homework assignments with some group work. An individual project requires an informal class presentation. prereq: Grad student

FNRM 5480. Topics in Natural Resources. (; 1-3 cr. ; Student Option; Periodic Fall & Spring)
Lectures in special fields of natural resources given by visiting scholar or faculty member. Topics specified in Class Schedule.

FNRM 5501. Urban Forest Management: Managing Greenspaces for People. (; 3 cr. ; Student Option; Every Spring)
Management concepts for green infrastructure of cities, towns, and communities. Urban forest as social/biological resource. Emphasizes management of urban forest ecosystem to maximize benefits. Tree selection, risk assessment, cost-benefit analysis, landscape planning, values, perceptions. How urban forestry can be a tool to improve community infrastructure.

FNRM 5562. Field Remote Sensing. (; 1 cr. ; Student Option; Every Fall)
This course is intended to be taken with, or after, the introductory remote sensing class, FNRM 3262/5262. It builds on the introductory course by providing a field context to the remote sensing discipline. We will focus on field methods and associated analyses that are typical in using and applying imagery and other spatial data. We will use a variety of remote sensing imagery, maps, field data collection tools, and software. Students will learn in an active, hands-on, way through multiple small-group field exercises. This course includes two eight-hour weekend field sessions. Prerequisite: grad student

French (FREN)

FREN 1001. Beginning French I. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Bonjour! Join us in learning the global language of diplomacy, culture, cuisine, and commerce! French is spoken on five continents, in approximately 40 countries, and even in Maine and Louisiana. Studying French will deepen your understanding of world history and the relationships between different cultures around the globe and close to home. Studying the language of Les Mis?rables, Monet, and joie de vivre allows you to access some of the most amazing art, thought, and food on the planet! Beginning French (French 1001) is designed for students with little or no knowledge of the French language. It focuses on developing your intercultural, reading, listening, speaking, and writing skills. By the end of this course, you will be able to communicate about family, housing, and school. You will also gain familiarity with

French-speaking communities around the world. The course features preparatory and practice activities outside of class designed to encourage analysis of language structure so that class time can be primarily devoted to meaningful interaction in French.

FREN 1002. Beginning French II. (; 5 cr. ; Student Option; Every Fall, Spring & Summer) Bienvenue en 1002! Ready to embark on a new journey to further develop your knowledge of the beautiful language of French? If you passed French 1001 or have taken the Entrance Proficiency Test (EPT) and were placed in 1002, this course is for you! While exploring topics such as French holidays and cultural celebrations and traditions, food, and ecology, you will further develop your listening, speaking, reading, and writing skills. You will also learn about the concept of la?cit?, one of the pillars of French society, and the differences and similarities between the school systems in France and the U.S. Preparatory activities designed to encourage students to analyze grammar points need to be completed at home so that class time can be primarily devoted to meaningful interactions in French. prereq: FREN 1001 or equivalent.

FREN 1003. Intermediate French I. (5 cr. ; Student Option; Every Fall, Spring & Summer) Nous vous souhaitons la bienvenue dans le troisi?me semestre de fran?ais. In this course, you will explore current issues such as the role technology plays in today's society and living a healthy lifestyle. Other themes include family, friends, and current social issues such as environment, energy, and immigration. Students will use film, excerpts of literature, and other authentic texts as part of the curriculum. Upon completion of the class, you will have more confidence in expressing past, future, and hypothetical events as well as your own opinions, feelings, and regrets. French 1003 is a five-credit course, so you should plan to spend an additional 10 hours a week on coursework outside the classroom. Upon successful completion of this course you will be able to enroll in French 1004. prereq: C- or better in FREN 1002 or 1022, or EPT (for students taking their first French course at the U)

FREN 1004. Intermediate French II. (5 cr. ; Student Option; Every Fall, Spring & Summer) Vous ?tes les bienvenus! Come join us in exploring some of the foundations of cultural identity. What does it mean to be "French?" What does it mean to be "American?" What are some things that people living within a particular culture have in common as a function of living in that culture? Where do personal and cultural identities intersect? We pay special attention to development of intercultural competence, comparing how food, child-rearing practices, elements of national identity, and diversity are treated in France and the US. We revisit many grammar concepts you have seen before, focusing on accuracy and extended language use. This course will allow you to be much more confident in using comparisons, narrating (past and present), linking ideas together into longer discourse, describing, etc. Upon successful completion of this course, you should be solidly in the Intermediate ranges of proficiency in French, able to travel and/or use French for your own goals. You will also be prepared for more advanced study in French here or abroad (FREN 3015 and 3014 are options after this course). prereq: C- or better in FREN 1003, or EPT/LPE (for students taking their first French course at the U)

FREN 1022. Accelerated Beginning French. (5 cr. ; Student Option; Every Fall & Spring) Heureux de vous revoir! Because you have studied French before, you already know what a wonderful language it is. This course is designed to return you to studying the language of Les Mis?rables, Monet, and joie de vivre! French 1022 is an accelerated review of French 1001 followed by the material covered in French 1002. At the end of this course, you will be able to communicate about topics such as food, family, school, the environment, travel and much more. If you have had a gap of more than a year since your last French class, you need to take the EPT to place into French 1022.

FREN 1501. Gateways to French and Francophone Studies: English Only. (AH,GP; 3 cr. ; A-F or Audit; Every Fall & Spring)
What key moments in French and Francophone culture can help us understand our world today? What are French and Francophone Studies? This course taught in English answers these questions by letting you discover the diverse cultures of France and French-speaking countries (such as Senegal, Canada or Belgium), and the ways we study them in the humanities. You will encounter texts, visual material, films, music, and historical events from various eras and learn how to make sense of them. Faculty from the French program will come and share with you what they research and why. A portion of the semester will be devoted to one of two role-playing simulations. During these weeks, you will delve deeply into the material, researching your historical character and working with other students whose goals converge with yours to sway the opinions of your other classmates. Along the way, you will enhance your skills in public speaking and writing. (1) The French Revolution. Where did the notion of the social contract and human rights come from? What dilemmas did the people of France face in this turbulent attempt to transition from monarchy to a new form of government? (2) The 1889 Universal Exhibition in Paris, which was a focus of debates about art, esthetics and urbanism. Do you want to be a traditional painter, Van Gogh, an art critic, a woman patron, an anarchist, or a worker on the Eiffel Tower? How did each of these groups or individuals understand the role of art?
You can take French 1501 as a freestanding class or at the same time as a language class (FREN 1001-1004, depending on your level). The class is required for new majors and minors in French Studies, but you can take it simply to discover the fascinating cultures of French-speaking communities worldwide! No prerequisites. All materials for French 1501 are in English, and students in all programs are welcome!

FREN 1502. Gateways to French and Francophone Studies: Bilingual. (AH,GP; 3 cr. ; A-F or Audit; Every Fall & Spring)
What are French and Francophone Studies? What key moments in French and Francophone culture can help us understand our world today? This course taught in English answers these questions by letting you discover the diverse cultures of France and French-speaking countries (such as Senegal, Canada or Belgium), and the ways we study them in the humanities. You will encounter texts, visual material, films, music, and historical events from various eras and learn how to make sense of them. Faculty from the French program will come and share with you what they research and why. A portion of the semester will be devoted to one of two role-playing simulations. During these weeks, you will delve deeply into the material, researching your historical character and working with other students whose goals converge with yours to sway the opinions of your other classmates. Along the way, you will enhance your skills in public speaking and writing. (1) The French Revolution. Where did the notion of the social contract and human rights come from? What dilemmas did the people of France face in this turbulent attempt to transition from monarchy to a new form of government? (2) The 1889 art exhibition in Paris, which was a focus of debates about art, esthetics and urbanism. Do you want to be a traditional painter, Van Gogh, an art critic, a woman patron, an anarchist, or a worker on the Eiffel Tower? French 1502 is taught in English, but it includes some readings in French. In some semesters, it may also include occasional discussions or small group activities in French. You can take French 1502 as a freestanding class or at the same time as a language class (FREN 3015-3016, depending on your level). The class is required for new majors and minors in French Studies, but you can take it simply to discover the fascinating cultures of French-speaking communities worldwide! prereq: FREN 1004 (or equivalent through the LPE)

FREN 1911. Globalizing the ?Middle Ages?. (; 3 cr. ; A-F only; Periodic Fall)
Students in this seminar will help develop ?Medieval Studies? as a part of ?Global Studies.? After learning how Medieval Studies was invented, developed, and utilized in the development of European power relations from the 14th through 21st centuries, students will read, view, and discuss material about other parts of the globe during the time corresponding to Europe?s Middle Ages (ca. 500- 1500 C.E.), envisaging how the integration of such material into ?Medieval Studies? can change not only education, but also social and political encounters among peoples and nations today.

FREN 3014. French Phonetics. (3 cr. ; Student Option; Every Fall & Spring) Survey of major institutions/components of modern French culture with special attention to lexical enrichment/pronunciation practice.

Study of linguistic description of French sounds/transcription. prereq: 1004

FREN 3015. Advanced French Grammar and Communication. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Taught entirely in French. Prerequisite: French 1004 or LPE. Voil?, c'est fait: You have completed French 1004 or passed the LPE. You are certified as an intermediate speaker of French. Don't lose your momentum! French 3015 allows you to start working toward a new goal: advanced proficiency in speaking, listening, reading, and writing French. Along with this higher proficiency comes a deeper understanding of French and Francophone culture around the world. In this class, you will focus on grammar in context, reading longer, more complex texts in the original language. You will write short compositions that include various genres such as the first-person narrative, the business letter, and the essay. You will learn how to use the correction software Antidote as a means of perfecting your writing skills. In class, you will participate in group work to boost your oral comprehension skills and in writing workshops to boost your writing skills. Listening activities include a film, an audiobook, a song, and videos related to readings. Written exercises include translation, grammar, and vocabulary building. Literary readings include excerpts from a medieval text (La l?gende de Tristan et Iseut), as well as four 20th-century texts (by Danielle Cadorette, Annie Ernaux, Albert Camus, and Pierre-Jakez H?lias). Journalists include Kamel Daoud (published in the Le Monde) and Fatym Layachi (published in the Moroccan newspaper Tel Quel). Based on these readings and discussions of the themes of friendship, family, education, work, technology, and bilingualism, you will explore notions of identity in the French and Francophone world.

FREN 3016. Advanced French Composition and Communication. (3 cr. ; Student Option; Every Fall & Spring)
Taught entirely in French. In this class, you will continue the work you began in FREN 3015, keeping your eyes on the goal of advanced proficiency. You will continue to focus on grammar in context, reading challenging texts in the original language. You will write short compositions that include various genres: a summary of an online article of your own choosing, an argumentative essay, and a film or literary analysis. You will perfect your use of the correction software Antidote as you move toward advanced proficiency in writing. In class, you will participate in group work to boost your oral comprehension skills and in writing workshops to boost your writing skills. Listening activities include several films, a song, and videos related to readings. Written exercises include translation, grammar, and vocabulary building. This course explores identity in the French and Francophone world through the themes of youth, travel, immigration, and colonisation. Literary readings include excerpts from the 18th century (Voltaire and Louis S?bastien Mercier), the 20th century (Ying Chen and Driss Chra?bi), and the 21st century (Tahar Ben Jelloun, Abdellah Ta?a, and Mina Oualdlhadj). Newspaper articles include the sociologist Edgar Morin (published in Le Monde) and the columnist R?da Allali (published in the Moroccan newspaper Tel Quel). But French 3016 adds new genres of writing as well. We will read selections from crime novels (Ren? Fr?gni and Michel de Roy), a graphic novel (Marjane Satrapi), and science-fiction (Pierre Boulle). This course is a good stepping-stone for an advanced course in French and Francophone film as we read about and view samples of Algerian, Canadian, and French films. Prerequisite: FREN 3015.

FREN 3017W. Advanced Writing in French: Genre, Style, Rhetoric. (WI; 3 cr. ; A-F only; Every Fall)
Workshop in journalistic/literary prose writing in French. Theme of journalistic/literary readings varies. Article, editorial, review, essay, biography, tale, prose poem. Word order, sequence of tenses, indirect discourse, literary tenses. Overview of stylistics/use of rhetorical figures. prereq: 3016

FREN 3018. French Oral Communication. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Intensive work in oral expression, listening comprehension. Incorporates wide variety of cultural topics. prereq: 3014, 3015

FREN 3022. The Language and Culture of Business in France. (; 3 cr. ; Student Option; Every Spring)
Examines French business language as well as business practices and culture in France. Includes cross-cultural analysis. prereq: 3015; completion of 3016 recommended

FREN 3101W. Methods in French and Francophone Studies. (LITR,WI; 3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Taught entirely in French. In this course, you will delve deeply into original stories, lyrics, plays, and films in French, from around the world and across time. What verbal and visual codes carry meaning in a given culture? How do cultures create a space for the subject or the self? As you discuss these questions, you will become a faster and more independent reader, gain sensitivity to the sonorities and rhythms of the French language and the nuances of sense it makes possible, and learn to perceive implicit meaning in texts. Theoretical readings and lessons in developing thesis statements and organizing arguments will enhance your ability to understand and create complex arguments in French. Each individual section of this course addresses these questions with a different selection of readings and films grouped around a specific theme, so please consult the Class Info page to find out more! nonfiction texts, cultural artifacts, and audio/visual media pertaining to France and Francophone communities across the centuries. prereq: 3016 or equiv

FREN 3111. Medieval Stories. (; 3 cr. ; Student Option; Periodic Fall)
Reading/discussion of major forms of medieval tale (comic, bawdy, moralizing, fantasy, historical) in modern French translation. Explores their relationship to development of French culture, especially urbanization, class relations, marriage, role of Church. prereq: 3101

FREN 3140. Topics in Medieval and Renaissance Literature. (; 3 cr. [max 9 cr.] ; Student Option; Every Spring)
Different aspects of French literature/culture of medieval/Renaissance periods (11th-16th century). Content varies depending on instructor. Literary, historical, or social problem. Period, author, genre, or topic of interest. Readings may be literary, critical, cultural, historical, political, etc. Specific content posted in department and in Course Guide. prereq: 3101

FREN 3172. The Court Society: Literature, Culture, Spectacle. (3 cr. ; Student Option; Periodic Fall)
Examines the court and salon society in 17th-century France. The production of taste, sociability, and national identity is considered in literature, painting, architecture, and the plastic arts. prereq: FREN 3101W or instructor permission. Old:

FREN 3240. Topics in Ancien Regime Literature. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
Different aspects of French literature/culture from early modern period (17th/18th centuries). Content varies depending on instructor. Literary, historical, or social problems. Period, author, genre or topic of interest. Readings may be literary, critical, cultural, historical, political, etc. Specific content posted in department/Course Guide. prereq: 3101

FREN 3260. Dramas of Culture: 20th-Century French and Francophone Theater. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
Key movements, dramatists, and contexts of 20th-century French and Francophone theater. Areas of study include naturalist and symbolist legacies as well as existentialist, avant-garde, and contemporary performance and drama. prereq: 3101

FREN 3310. Literature of Revolution and Upheaval. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
A study of revolutionary movements in France seen through novels placed in historical context. Content may vary, but course will deal with radical historical, cultural and literary changes in France primarily in the modern period. prereq: 3101

FREN 3340. Topics in Modern French Literature. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Spring)
Modern French literature/culture, defining modern period as that of post-Revolution France. Content varies depending on instructor. Literary, historical, or social problem. Period, author, genre, or topic of interest. Specific content posted in department/in Course Guide. prereq: 3101

FREN 3345. The Holocaust in France: Literature, History, Testimony. (3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the event of the Holocaust (which we call "Shoah" in France

since the 80s and especially since the film of the same name by Claude Lanzmann) in literature, film and archives. France has a complex relationship with Jews since the Middle Ages. During the French Revolution (1789), then under the Empire (Napoleon Bonaparte, 1800-1815), the Jews benefitted from political emancipation. The Republic defended the equality of Jews before the law as French citizens. But France was also the country of political anti-Semitism and of the Dreyfus Affair (there were in the nineteenth century some very virulent anti-Semitic propaganda writers, for example Edouard Drumont, author of Jewish France, in 1880, just before the Dreyfus Affair). This history of the Jews in France culminates with the Vichy regime, the policy of collaboration with Nazi Germany, antisemitic writings and propaganda emanating from important writers such as Louis-Ferdinand Celine and politicians, and the deportation of part of the Jewish population to the extermination camps. How does this story affect fictional writing, and debates on how to represent this event? More than a course on the Holocaust, we explore the story of its reminiscence in French culture. It is not a history class, but a class in culture, literature, memory and testimony. FREN 3345 and 3745 meet together. Class sessions are taught in English. Reading and writing assignments for FREN 3345 are in modern French. FREN 3345 may count towards the major or minor in French Studies. Reading and writing assignments for FREN 3745 are in English. FREN 3745 may not count towards the major or minor in French Studies. prereq: FREN 3015; it is recommended that students have taken, or take concurrently, FREN 3101W.

FREN 3350. Topics in Literature. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Focuses on a problem, period, author, or topic of interest. Specific content posted in department and listed in Course Guide. prereq: 3101

FREN 3410. Topics in Quebecois Literature. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Study writing produced in Quebec as a literature of its own, not simply as a part of Canadian literature. Literature will be studied in relation to other North American literatures and to Francophone literature produced elsewhere in the world. prereq: 3101

FREN 3431. Gender and Sexuality in Francophone Literature and Cinema. (3 cr. ; A-F only; Periodic Fall & Spring)
This course will introduce students to colonial and postcolonial representations of gender and sexuality in Francophone contexts. Through literary and cinematic works from the Caribbean, Maghreb, West Africa, and Quebec, we will examine constructions and deconstructions of gender roles and sexual norms in relation to other identity categories such as race, class, nation and religion. We will consider topics such as exotic portrayals of the other, repressive and rebellious eroticism, and ambivalent or unruly affirmations of identity. Taught in French. prereq: 3101W. All courses counted toward a major/minor must be taken on an A-F basis.

FREN 3451. North African Cinema. (; 3 cr. ; Student Option; Fall Odd Year)
Cinemas of the Maghreb, the northern African nations of Morocco, Algeria, and Tunisia. Themes may include North African cities/ communities; gender, class and ethnicity; and impact of globalization in migratory patterns. Films. Readings in philosophy, history, sociology, anthropology, and cultural critique. prereq: 3101

FREN 3471. Topics in Francophone African Literature and Cultures. (GP; 3 cr. ; Student Option; Fall Odd Year)
Issues relevant to cultures/societies of francophone Sub-Saharan Africa as reflected in literature, film, and cultural critique. prereq: 3101W

FREN 3479. Francophone Writers of the African Diaspora. (; 3 cr. ; Student Option; Fall Even Year)
Literature from Francophone North Africa, Africa, the Caribbean of the colonial and/or post-colonial eras, examined in its historical, cultural, or ideological contexts. Reading selections may include texts by immigrant or exiled writers in France. prereq: 3101

FREN 3500. Linguistic Analysis of French. (3 cr. ; A-F only; Fall Even Year)
Introduction to scientific study of French language. Concepts/terminology to describe nature/functioning of sounds, words, sentences/meaning, and variation. Taught in French. prereq: 3015

FREN 3521. History of the French Language. (; 3 cr. ; Student Option; Fall Odd Year)
Origins/development of French language from Latin to contemporary French. Selected texts. Present stage/development. prereq: 3015, [3500 or Ling 3001 or instr consent]

FREN 3531. Sociolinguistics of French. (GP; 3 cr. ; Student Option; Periodic Fall)
Explores variation in the use of French associated with factors such as medium (oral/ written), style (formal/informal), region, social and economic groups. Prerequisite: FREN 3015 or equivalent; strongly recommended: FREN 3500 or LING 3001.

FREN 3541. Oral Discourse of French. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Contemporary French discourse. Spontaneous, multi-speaker discourse. Readings. Syntactic analysis. Phonological/lexical particularities. Macro level analyses. Discourse analysis/ conversation analysis. prereq: 3015, [3500 or Ling 3001 or instr consent]

FREN 3611. Speaking of Love in Medieval France: Stories, Songs, and Letters. (GP,LITR; 3 cr. ; A-F only; Fall Even Year)
How did people talk about love in the Middle Ages? What songs did they sing about it? What stories did they tell? How did it define the self? In this course, we will study troubadour songs, short tales, romances, and letters composed in twelfth-century France and Anglo-Norman England. We will examine their historical context: the patronage of Eleanor of Aquitaine and her family, the broader context of medieval court life, and the erudite circles that formed during the rise of the Parisian schools. Because what people say is determined by the language, motifs, and forms that they have available to them, we will discuss the transmission of ideas about love and the interpretation of exemplary figures (Tristan and Iseut, Lancelot and Guinevere). We will also consider the literary form of these texts in relation to their meaning. But at the heart of our inquiry will be the notion of the self. How did "speaking of love" allow medieval writers to cultivate their own subjectivity or individuality? Texts will include troubadour songs, the Lais of Marie de France, the romances of Tristan and Iseut by Thomas of England and B?roul, Chr?tien de Troyes's Arthurian romances, and the letters of Abelard and Heloise. We will also study a film about Eleanor of Aquitaine and her family (The Lion in Winter, 1968) and a contemporary opera about a troubadour and his lady, Kaija Saariaho's L'Amour de loin (2000). FREN 3611 and 3711 meet together. Both FREN 3611 and 3711 are taught in English. Reading and writing assignments for FREN 3611 are in modern French. FREN 3611 may count towards the major or minor in French Studies. Reading and writing assignments for FREN 3711 are in English. FREN 3711 does not count towards the major or minor in French Studies. prereq: FREN 3015

FREN 3614. Disabled Bodies, Minds and Selves in French Literature, Culture and Art. (3 cr. ; Student Option; Periodic Fall & Spring)
At any given moment in history, what are the socio-cultural forces that give rise to an understanding of physical difference? What forces enable self-expression, self-determination, and liberation from this understanding? This course explores the history of disability and the representations of disability in literature, art, and culture. We will investigate theory and praxis of disability studies in France. Spanning the Renaissance to the present day, this course seeks to understand the experiences of disabled people and their communities in different periods, through a variety of genres and media, exploring medical histories, representation (for a public presumed to be able-bodied), memoir, activism, and art and literature by disabled people.

FREN 3650. Topics in French/Francophone Cultures. (; 3 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
French/francophone cultures in various historical, social, political, geographical contexts. prereq: 3015

FREN 3661. Francophone North America. (3 cr. ; Student Option; Periodic Fall & Spring)
Ce cours est une introduction aux diff?rentes communaut?s francophones en Am?rique du Nord. Nous retracerons l?histoire de ces communaut?s au Canada, aux ?tats-Unis et ? Saint-Pierre et Miquelon (une collectivit? d?outre-mer fran?aise) et examinerons les diff?rentes manifestations des cultures francophones qui se sont d?velopp?es: leur

langue, leur musique, leurs traditions, leurs drapeaux, leur cuisine, leur litt?rature et leur cin?ma. Nous explorerons aussi l?impact que ces cultures exercent sur une r?gion majoritairement anglophone. This course is an introduction to the different Francophone communities in North America. We will retrace the history of these communities in Canada, the United States, and Saint-Pierre et Miquelon (a French collectivit? d?outre-mer), and examine the different manifestations of the Francophone cultures that developed: language, music, traditions, flags, cuisine, literature, and cinema. We will also explore the impact that these cultures exert on a region predominantly English speaking.

FREN 3711. Speaking of Love in Medieval France: Stories, Songs, and Letters. (GP,LITR; 3 cr. ; Student Option; Fall Even Year)
How did people talk about love in the Middle Ages? What songs did they sing about it? What stories did they tell? How did it define the self? In this course, we will study troubadour songs, short tales, romances, and letters composed in twelfth-century France and Anglo-Norman England. We will examine their historical context: the patronage of Eleanor of Aquitaine and her family, the broader context of medieval court life, and the erudite circles that formed during the rise of the Parisian schools. Because what people say is determined by the language, motifs, and forms that they have available to them, we will discuss the transmission of ideas about love and the interpretation of exemplary figures (Tristan and Iseut, Lancelot and Guinevere). We will also consider the literary form of these texts in relation to their meaning. But at the heart of our inquiry will be the notion of the self. How did "speaking of love" allow medieval writers to cultivate their own subjectivity or individuality? Texts will include troubadour songs, the Lais of Marie de France, the romances of Tristan and Iseut by Thomas of England and B?roul, Chr?tien de Troyes's Arthurian romances, and the letters of Abelard and Heloise. We will also study a film about Eleanor of Aquitaine and her family (The Lion in Winter, 1968) and a contemporary opera about a troubadour and his lady, Kaija Saariaho's L'Amour de loin (2000). FREN 3611 and 3711 meet together. Both FREN 3611 and 3711 are taught in English. Reading and writing assignments for FREN 3611 are in modern French. FREN 3611 may count towards the major or minor in French Studies. Reading and writing assignments for FREN 3711 are in English. FREN 3711 does not count towards the major or minor in French Studies.

FREN 3745. The Holocaust in France: Literature, History, Testimony. (3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the event of the Holocaust (which we call "Shoah" in France since the 80s and especially since the film of the same name by Claude Lanzmann) in literature, film and archives. France has a complex relationship with Jews since the Middle Ages. During the French Revolution (1789), then under the Empire (Napoleon Bonaparte, 1800-1815), the Jews benefitted from political emancipation. The Republic defended the equality of Jews before the law as French citizens. But France was also the country of political anti-Semitism and of the Dreyfus Affair (there were in the nineteenth century some very virulent anti-Semitic propaganda writers, for example Edouard Drumont, author of Jewish France, in 1880, just before the Dreyfus Affair). This history of the Jews in France culminates with the Vichy regime, the policy of collaboration with Nazi Germany, antisemitic writings and propaganda emanating from important writers such as Louis-Ferdinand Celine and politicians, and the deportation of part of the Jewish population to the extermination camps. How does this story affect fictional writing, and debates on how to represent this event? More than a course on the Holocaust, we explore the story of its reminiscence in French culture. It is not a history class, but a class in culture, literature, memory and testimony. FREN 3345 and 3745 meet together. Both FREN 3345 and 3745 are taught in English. Reading and writing assignments for FREN 3345 are in modern French. FREN 3345 may count towards the major or minor in French Studies. Reading and writing assignments for FREN 3745 are in English. FREN 3745 does not count towards the major or minor in French Studies. Prerequisite: None

FREN 3750. Topics in French or Francophone Literature and Culture. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
Theme, problem, period, or topic of interest in French or Francophone literature or culture. See Class Schedule. Taught in English. prereq: Non-French major; knowledge of French helpful

FREN 3850. Topics in French and Francophone Media. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics in French and Francophone media. Content varies by instructor; topics may include studies in French and/or Francophone cinema, film, theater, television, and/or other media. prereq: FREN 3015.

FREN 3852. Memory in French and Francophone Cinema. (3 cr. ; Student Option; Periodic Fall & Spring)
This course will examine cinema?s privileged relationship with memory. Our itinerary will take us through key French and Francophone films, asking how these works record, construct and deconstruct ?individual? and ?collective? memories. Topics will include bearing witness to the traumas of war, genocide and colonization; commemorating resistance and fostering emancipation; interventions in identity politics; (re)partitions of rural and urban spaces; and the elusive divide between fiction, documentary and memoir. Students will be expected to master a vocabulary for the formal analysis of film. prereq: Students should have completed FREN 3016 with a minimum grade of B.

FREN 3896. Internship in a French-Speaking Milieu. (; 1-4 cr. ; A-F only; Every Fall, Spring & Summer)
Volunteer or paid work in French-speaking milieu, undertaken at initiative of individual students. Work under direction of work supervisor/advisor chosen from among regular or adjunct faculty. Complete two-three written assignments designed to enhance language/ field-specific learning. prereq: 3016, 3014 [3018 strongly recommended], [3022 strongly recommended for students undertaking internships in business, government, or law]

FREN 4001. Beginning French for Graduate Student Research I. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Bonjour! Join us in learning the global language of diplomacy, culture, cuisine, and commerce! French is spoken on five continents, in approximately 40 countries, and even in Maine and Louisiana. Studying French will deepen your understanding of world history and the relationships between different cultures around the globe and close to home. Studying the language of Les Mis?rables, Monet, and joie de vivre allows you to access some of the most amazing art, thought, and food on the planet! Beginning French (French 1001) is designed for students with little or no knowledge of the French language. It focuses on developing your intercultural, reading, listening, speaking, and writing skills. By the end of this course, you will be able to communicate about family, housing, and school. You will also gain familiarity with French-speaking communities around the world. The course features preparatory and practice activities outside of class designed to encourage analysis of language structure so that class time can be primarily devoted to meaningful interaction in French.

FREN 4002. Beginning French for Graduate Student Research II. (5 cr. ; Student Option; Every Fall, Spring & Summer)
Bienvenue en 4002! Ready to embark on a new journey to further develop your knowledge of the beautiful language of French? If you passed French 1001/4001 or have taken the Entrance Proficiency Test (EPT) and were placed in 1002, this course is for you! While exploring topics such as French holidays and cultural celebrations and traditions, food, and ecology, you will further develop your listening, speaking, reading, and writing skills. You will also learn about the concept of la?cit?, one of the pillars of French society, and the differences and similarities between the school systems in France and the US. Preparatory activities designed to encourage students to analyze grammar points need to be completed at home so that class time can be primarily devoted to meaningful interactions in French. prereq: FREN 1001/4001 or equivalent.

FREN 4003. Int French for Grad Research I. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Nous vous souhaitons la bienvenue dans le troisi?me semestre de fran?ais. In this course, you will explore current issues such as the role technology plays in today's society and living a healthy lifestyle. Other themes include family, friends, and current social issues such as environment, energy, and immigration. Students will use film, excerpts of literature, and other authentic texts as part of

the curriculum. Upon completion of the class, you will have more confidence in expressing past, future, and hypothetical events as well as your own opinions, feelings, and regrets. French 4003 is a five-credit course, so you should plan to spend an additional 10 hours a week on coursework outside the classroom. Upon successful completion of this course you will be able to enroll in French 4004. prereq: C- or better in FREN 1002/4002 or 1022/4022, or EPT (for students taking their first French course at the U)

FREN 4004. Intermediate French for Graduate Student Research II. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Vous ?tes les bienvenus! Come join us in exploring some of the foundations of cultural identity. What does it mean to be "French?" What does it mean to be "American?" What are some things that people living within a particular culture have in common as a function of living in that culture? Where do personal and cultural identities intersect? We pay special attention to development of Intercultural Competence, comparing how food, child-rearing practices, elements of national identity, and diversity are treated in France and the US. We revisit many grammar concepts you have seen before, focusing on accuracy and extended language use. This course will allow you to be much more confident in using comparisons, narrating (past and present), linking ideas together into longer discourse, describing, etc. Upon successful completion of this course, you should be solidly in the Intermediate ranges of proficiency in French, able to travel and/or use French for your own goals. You will also be prepared for more advanced study in French here or abroad. prereq: C- or better in FREN 1003/4003, or EPT/LPE (for students taking their first French course at the U)

FREN 4022. Accelerated Beginning French for Graduate Student Research. (; 5 cr. ; Student Option; Every Fall & Spring)
Heureux de vous revoir! Because you have studied French before, you already know what a wonderful language it is. This course is designed to return you to studying the language of Les Mis?rables, Monet, and joie de vivre! French 1022 is an accelerated review of French 1001/4001 followed by the material covered in French 1002/4002. At the end of this course, you will be able to communicate about topics such as food, family, school, the environment, travel and much more. If you have had a gap of more than a year since your last French class, you need to take the EPT to place into French 1022. prereq: 1001/4001 or equivalent

FREN 4101V. Honors Capstone Seminar in French and Francophone Studies. (WI; 2 cr. [max 3 cr.] ; A-F only; Every Spring)
Course for French and FRIT majors only, to be taken during the final semester. This is the capstone experience of the major in French and Francophone or FRIT Studies. Building on your prior coursework, your linguistic expertise in French, and your analytical skills, it gives you the opportunity to do independent, original work on a topic of particular interest to you. This project is designed to bridge two upper-division French courses: a 3-credit elective of your own choice in the areas of literature, culture, or linguistics (i.e., one of your required electives numbered 31xx-36xx) and the senior project course itself (4101W/V). The elective provides background in the general field of research, while French 4101W/V allows you to learn the basics of research and advanced academic writing while working with a faculty member and a group of peers involved in similar projects. prereq: French 3101W and at least three electives completed.

FREN 4101W. Capstone Seminar in French and Francophone Studies. (WI; 2 cr. [max 3 cr.] ; A-F only; Every Spring)
Course for French and FRIT majors only, to be taken during the final semester. This is the capstone experience of the major in French and Francophone or FRIT Studies. Building on your prior coursework, your linguistic expertise in French, and your analytical skills, it gives you the opportunity to do independent, original work on a topic of particular interest to you. This project is designed to bridge two upper-division French courses: a 3-credit elective of your own choice in the areas of literature, culture, or linguistics (i.e., one of your required electives numbered 31xx?36xx) and the Senior Project Course itself (4101W/V). The elective provides background in the general field of research, while French 4101W/V allows you to learn the basics of research and advanced academic writing while working with a faculty member and a group of peers involved in similar projects. prereq: French 3101W and at least three electives completed.

FREN 4109W. Capstone Independent Study in French and Francophone Studies. (WI; 2 cr. ; A-F only; Every Fall & Spring)
Completion of research paper based on paper written for previous course or expansion of project undertaken in concurrent course. prereq: instr consent, [completion of most major coursework or permission of DUS]

FREN 4110V. Honors Capstone Independent Study in French and Francophone Studies. (WI; 2-4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Directed study used to develop or complete honors thesis in French and Francophone studies. prereq: [Completion of most major coursework or permission of DUS], candidate for honors in French, instr consent

FREN 4970. Directed Readings. (; 1-4 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Designed to meet unique requirements agreed upon by a faculty member and a student. Individual contracts are drawn up listing contact hours, number of credits, written and other work required. Each contract will vary. prereq: instr consent

FREN 5265. Graduate Proseminar in French Studies. (2 cr. ; Student Option; Every Spring)
This course introduces new graduate students to the goals, skills, practices, standards and other components of academic careers in the fields of French and Francophone studies, mostly in the US context. It is an introduction to all major aspects of our profession. The seminar combines readings, lectures and presentations by the instructor and guest lecturers, collective discussions, individual and group research, and writing assignments. The final product of the seminar is a talk ready to be delivered at a graduate or national conference, or a book review or short article ready to be submitted for publication.

FREN 5301. Critical Issues in French Studies. (; 3 cr. ; Student Option; Spring Even Year)
Introduces the methods of interpretation and critical debates that have shaped and continue to define the discipline of French studies. Provides a practical introduction to graduate-level literary research. prereq: Grad or instr consent

FREN 5350. Topics in Literature and Culture. (; 3 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Problem, period, author, or topic of interest. See Class Schedule. prereq: 3101 or equiv

FREN 5410. Topics in Quebecois Literature. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Study writing produced in Quebec as a literature of its own, not simply as a part of Canadian literature. Literature will be studied in relation to other North American literatures and to Francophone literature produced elsewhere in the world.

FREN 5470. Post/Colonial Francophone Literatures. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
Francophone literature from North Africa, Africa, and the Caribbean of the colonial and/or post-colonial eras in the light of relevant literary and cultural theories. prereq: 3111 or above

FREN 5531. Sociolinguistics of French. (; 3 cr. ; Student Option; Periodic Fall)
Explores variation in the use of French associated with factors such as medium (oral/written), style (formal/informal), region, social and economic groups. prereq: Graduate student status and advanced proficiency in French

FREN 5541. Oral Discourse of French. (; 3 cr. ; Student Option; Periodic Fall)
Nature of contemporary spoken French discourse. Focuses on spontaneous, multi-speaker discourse. Readings include examples of various linguistic approaches to such discourse. Emphasizes syntactic analysis. Phonological/lexical particularities. 'Macro' level analyses such as discourse analysis and conversation analysis. prereq: 3015, grad student; Ling 5001 recommended

FREN 5614. Disabled Bodies, Minds and Selves in French Literature, Culture and Art. (3 cr. ; Student Option; Periodic Fall & Spring)
At any given moment in history, what are the socio-cultural forces that give rise to an understanding of physical difference? What forces enable self-expression, self-determination, and liberation from this understanding? This course explores the history of disability and the representations of disability in literature, art, and culture. We

will investigate theory and praxis of disability studies in France. Spanning the Renaissance to the present day, this course seeks to understand the experiences of disabled people and their communities in different periods, through a variety of genres and media, exploring medical histories, representation (for a public presumed to be able-bodied), memoir, activism, and art and literature by disabled people.

FREN 5995. Directed Teaching. (; 1 cr. ; S-N or Audit; Every Fall)
Directed teaching.

French and Italian (FRIT)

FRIT 1601. Migrants and Refugees in Mediterranean Cinema. (AH,GP; 3 cr. ; Student Option; Periodic Spring)
This course deals with films made in France, Spain, Italy, the Maghreb (Morocco, Algeria, and Tunisia), sub-Saharan Africa and the Levant (mostly Syria). All of the films tackle migration and most of them deal with the crossing of the Mediterranean Sea in particular. It focuses on how migrants, regular and clandestine migrations, as well as related themes, including globalization, hospitality and transnational modes of transportation have been filmed, discussed and written about in various types of discourses. Why and how do people emigrate? Where are the major destinations of migrants? What is Fortress Europe? What is the ?global South?? What is the so-called refugee crisis? Who is a refugee? What impact has the Arab Spring had on contemporary migrations to Europe? How does mass media portray the global South? What do political discourses tell us about the European and North African handlings of recent human migratory movements? Can artists effectively put forward an alternate take on such issues? What types of responses in artistic productions as well as in the political and humanitarian arenas have failed attempts at crossing the Mediterranean Sea triggered? These are some of the questions we will address. Among the films that we will analyze?all shown in class? are Chus Guti?rrez?s Return to Hansala, Reem Kherici?s Paris or Perish, Isma?l Ferroukhi?s The Grand Voyage and Gianfranco Rosi?s Fire at Sea. All films have English subtitles. The class will be conducted in English.

FRIT 3600. The Renaissance. (; 3 cr. ; Student Option; Periodic Spring)
Relationships between the visual arts, literature, science, philosophy, and politics in Europe from about 1300-1600. Works of artists, writers, and intellectuals (e.g., Michelangelo Buonarotti, Niccolo Machiavelli, Michel de Montaigne), different artistic and literary forms (e.g., portrait, sonnet, essay), and broad thematic issues, including the individual, antiquity, the state, and discovery. Team taught.

FRIT 3850. Topics in French and Italian Cinema. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Summer)
Theme, problem, period, filmmaker, or topic of interest in French/Italian cinema. See Class Schedule. Taught in English. prereq: Knowledge of [French or Italian] helpful but not required

FRIT 5240. Topics in French & Italian Literatures & Cultures. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Topics dealing with intersections of French & Italian literatures & cultures. Taught in English.

FRIT 5850. Topics in French and Italian Cinema. (; 3 cr. ; Student Option; Periodic Fall)
Focuses on a theme, problem, period, filmmaker, or other topic of interest in French or Italian cinema. See Class Schedule. Taught in English. prereq: Knowledge of [French or Italian] helpful but not required

FRIT 5999. Teaching of French and Italian: Theory and Practice. (; 3 cr. ; Student Option; Every Fall)
Theoretical and practical aspects of language learning and teaching applied to French and Italian. Includes history of foreign language teaching in 20th-century United States. Taught in English.

Gay, Lesbian, Bisexual, Transg (GLBT)

GLBT 1001. Introduction to GLBT Studies. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall)
History of contemporary GLBT-identified communities. Terms of theoretical debates regarding sexual orientation, identity, and experience. Analyzes problems produced and insights gained by incorporating GLBT issues into specific academic, social, cultural, and political discourses.

GLBT 3211. History of Sexuality in Europe. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
History of sexuality in Europe, from ancient Greece to present. Plato's philosophy of love, St. Augustine's conception of sin, prostitution in 15th century, sexual science of Enlightenment. Industrial revolution and homosexual subcultures. Rape scares and imperialism. Eugenics and Nazi Germany.

GLBT 3212. Dissident Sexualities in U.S. History. (3 cr. ; A-F or Audit; Every Fall)
History of sexuality in United States. Emphasizes sexualities that have challenged dominant social/cultural norms. Development of transgender, bisexual, lesbian, gay identities/ communities. Politics of sex across lines of race/ethnicity. Historical debates over controversial practices, including sex work.

GLBT 3301. Gay, Lesbian, Bisexual, and Transgender Social Movements in the United States. (; 3 cr. ; Student Option; Every Spring)
Interdisciplinary course. Development of GLBT social movements using social movement theory/service learning.

GLBT 3309. LGBTQ Literature: Then and Now. (DSJ,LITR; 3 cr. ; Student Option; Every Fall)
LGBTQIA life in the US has changed significantly over the past few decades. By examining a selection of poetry, prose, and film, our class will try to answer the questions: "How did we get to where we are today?" and "Where do we go next?" We will look at classic works in their historical contexts to see what was revolutionary about their publication; we will trace how they paved the way for all that followed. We will look at very new works to understand the concerns of twenty-first century LGBTQIA writers and readers. From the "lavender scare" to the Stonewall Riots to the AIDS pandemic to marriage equality to genderqueer and trans movements, we will explore how LGBTQIA authors and filmmakers have both responded to and shaped the ethos of our times.

GLBT 3404. Transnational Sexualities. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
Lesbian/gay lives throughout world. Culturally-specific/transcultural aspects of lesbian/ gay identity formation, political struggles, community involvement, and global networking. Lesbian/gay life in areas other than Europe and the United States.

GLBT 3456W. Sexuality and Culture. (DSJ,WI; 3 cr. ; Student Option; Periodic Fall & Spring)
Historical/critical study of forms of modern sexuality (heterosexuality, homosexuality, romance, erotic domination, lynching). How discourses constitute/regulate sexuality. Scientific/scholarly literature, religious documents, fiction, personal narratives, films, advertisements.

GLBT 3502. Transgender Studies Now. (DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
Transgender studies transforms ideas about gender, sexuality, identity, and biology. We look at how knowledge is made about transgender life across disciplines and media: film, fiction, and the internet, as well as medicine, history, anthropology, and gender studies. This course also asks how transgender social practices and community politics are embedded in dynamics of race, class, sexuality, nationality, and ability.

GLBT 3993. Directed Studies. (; 1-6 cr. ; A-F or Audit; Periodic Fall & Spring)
Guided individual study. GLBT topic not available through regular course offerings. Students work with faculty who share their research interests. Number of credits based on scope of project, student needs, and advising instructor's approval. prereq: GLBT studies minor, instr consent

GLBT 4101. Gender, Sexuality, and Politics in America. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Ways public and private life intersect through the issues of gender, sexuality, family, politics, and public life; ways in which racial, ethnic, and class divisions have been manifest in the political ideologies affecting private life.

GLBT 4204. Sex, Love, & Disability. (3 cr. ; Student Option; Periodic Fall & Spring)
In America's cultural imagination, people with disabilities are figured either as childlike and asexual, or improperly hypersexual. For disabled people (or anyone perceived as disabled) this paradox has meant

denial of sexual agency and gender expression, histories of forced sterilization and institutionalization, sociopolitical marginalization, and great risk of sexual violence (and even death). In this course, we'll examine this history to better understand our contemporary present. We'll analyze constructions of disability and sexuality as they are interwoven with gender, class, race, and citizenship. We will ask: What might it mean to desire disability? Is there a disability sexual culture? Do disabled people queer sex, or does sexuality queer disability? What is the relationship between GLBTQ and disability rights and liberation movements? Drawing from feminist, queer, and disability studies, we'll answer these questions (and more) by examining how the imagined able-bodymind structures our understanding of gender/ sexuality, and how disability sexual cultures resist these norms.

GLBT 4403. Queering Theory. (; 3 cr. ; Student Option; Periodic Fall & Spring)
This course will give you a solid theoretical foundation in the field of queer studies in addition to explaining its relation to other scholarly traditions, including (but not limited to) feminist theory, GLBT studies, literary studies, psychoanalysis, and postmodernism. Over the course of the semester you will examine the historical forces that birthed queer politics and theory, become conversant in its conceptual basis, interrogate and analyze its various uses and applications, and finally apply it in your own arguments. prereq: Any GWSS or GLBT course

GLBT 4415. Transnational Body Politics. (GP; 3 cr. ; A-F only; Periodic Fall & Spring)
Our bodies are always already modified. How we shape our bodies can express our deepest feelings about who we are. Body modification can also represent cultural and subcultural identifications or expectations based on gender, race, class, and sexuality. But what we do with our bodies is never separate from the politics of cultural difference and fluctuating ideas of what is acceptable or unacceptable, civilized or uncivilized. These ideas are historically and culturally specific. This course looks at body modification on a transnational scale to ask how we come to know what differentiates "mutilation" from "correction." We ask how feminist, queer and critical race theories illuminate these debates, reading across historical, anthropological, medical, and literary texts. Weekly topics include gender, race, and cosmetic surgery; skin whitening technologies; transnational gender reassignment; surgical tourism; female genital cutting; piercing, tattooing and scarification; the cultural politics of hair; and body modification in the context of transnational feminized labor.

GLBT 4502. Gender and Public Policy. (3 cr. ; Student Option; Periodic Fall & Spring)
Public policy issues, processes, and histories as these affect women-, children-, and gender-related issues.

GLBT 5993. Directed Study. (; 1-12 cr. ; Student Option; Every Fall & Spring)
Directed Study

Gender, Women, & Sexuality Std (GWSS)

GWSS 1001. Gender, Power, and Everyday Life. (; 3 cr. ; Student Option; Every Summer)
U.S. multi-/cross-cultural studies of contemporary social, cultural, and personal conditions of women's lives.

GWSS 1002. Politics of Sex. (DSJ,SOCS; 3 cr. ; Student Option; Every Spring)
Introductory survey of historical, cultural, psychological, and sociopolitical dimensions of analyzing gender/sexuality. Norms/deviances pertaining to gender/sexuality as differently enacted/understood by social groups in different time-/place-specific locations.

GWSS 1003W. Women Write the World. (GP,WI,LITR; 3 cr. ; Student Option; Every Fall)
Concepts in literary studies. Poems, plays, short stories, novels, essays, letters by women from different parts of world. Focuses on lives, experiences, and literary expression of women, including basic concepts of women's studies.

GWSS 1004. Screening Sex: Visual and Popular Culture. (AH; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Film history and theory; feminist critique of popular culture.

GWSS 1005. Engaging Justice. (CIV; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
U.S./cross-cultural studies of social movements/political organizing around justice/ equality.

GWSS 1006. Skin, Sex, and Genes. (SOCS,TS; 3 cr. ; Student Option; Fall Odd Year)
Interdisciplinary course that explores the tense relationships between science, medicine, and gender and sexuality.

GWSS 1007. Introduction to GLBT Studies. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall)
History of contemporary GLBT-identified communities. Terms of theoretical debates regarding sexual orientation, identity, experience. Analyzes problems produced/ insights gained by incorporating GLBT issues into specific academic, social, cultural, political discourses.

GWSS 1915. Trauma and the White Racial Frame: Disrupting Whiteness and White Body Supremacy in Everyday Life. (; 3 cr. ; A-F only; Every Fall)
This class will trace trauma as it was passed down from one European body to another beginning with Middle Ages, imported to the New World by Colonists, then based down by many generations of people including African Americans, First-Nations peoples, and white Americans. One of the basic premises of this course is that psychosocial wounds of white body supremacy in the United States impedes ethical reasoning and decision making in society. Consequently, most Americans routinely reinforce the power of whiteness and white supremacy to detriment of other members of society, the social environments that people interact in, and society as a whole. This course will educate students about the socio-cultural wounds of racial trauma in the United States, toward the aim of, building personal and interpersonal resilience at school, work, and other settings. Students will develop skills to recognize and disrupt white body supremacy in order to foster racial justice, equity, and diversity in broader society.

GWSS 3002V. Honors: Gender, Race and Class in the U.S.. (WI,DSJ; 3 cr. ; A-F only; Periodic Fall & Spring)
Comparative study of women, gender, race, class, sexuality in two or more ethnic cultures in U.S. prereq: Honors

GWSS 3002W. Gender, Race, and Class in the U.S.. (DSJ,WI; 3 cr. ; A-F only; Every Fall & Spring)
Comparative study of women, gender, race, class, sexuality in two or more ethnic cultures throughout U.S.

GWSS 3003. Gender and Global Politics. (GP,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Similarities/differences in women's experiences throughout world, from cross-cultural/historical perspective. Uses range of reading materials/ media (feminist scholarship, fiction, film, news media, oral history, autobiography).

GWSS 3047W. Anthropology of Sex, Gender and Sexuality. (WI; 3 cr. ; Student Option; Periodic Spring)
This course explores the concepts of "sex," "gender," and "sexuality" through the scholarship of feminist anthropology, queer anthropology, and their antecedents. Students will read ethnographies that grapple with the contingent and shifting formations of these social constructions - when they emerge, disentangle, re-entangle, submerge, etc. The course will highlight the roles of imperialism, (settler) colonialism, capitalism, racism, heteropatriarchy, ableism, and other forms of social power in shaping these formations as well at the social categories - "sex," "gender," and "sexuality" - themselves.

GWSS 3102V. Honors: Feminist Thought and Theory. (AH,WI,CIV; 3 cr. ; A-F only; Every Fall)
Course explores a range of feminist theoretical perspectives, asking how theory develops both in response to earlier theoretical traditions and in the context of diverse forms of practice, starting from the assumptions that theories emerge from (rather than just being applied to) practice, and that theory-making is itself a form of practice.

GWSS 3102W. Feminist Thought and Theory. (AH,WI,CIV; 3 cr. ; A-F only; Every Fall)
Substantively, this course surveys the rich and varied history of influential feminist ideas. These ideas propel us to think critically about sex, gender, sexuality, and the categories that intersect with them; these ideas provide us with language to express ourselves more critically and creatively; these ideas enable us to rethink relationships of power and forge coalition-al values and connections across difference. This course also holds the field of feminism accountable for its influence,

in hopes of contributing to more liberating feminist theories. Methodologically, this course develops students? skills in tracking arguments, understanding commonly used theoretical terms, learning how to apply theory to real life situations, and honing students? theoretical writing.

GWSS 3203W. Blood, Bodies and Science. (SOCS,WI,TS; 3 cr. ; Student Option; Every Fall & Summer)
What does the ?social life? of Coronavirus and Covid-19 look like? Do pandemics have politics? Are diseases biomedical or socio-political phenomena? Why are African-Americans disproportionately affected by Covid-19 and HIV in the US? Why did the US become a hotspot for the rapid transmission of Coronavirus and what does this reveal about the market-based healthcare system? What are the global stories, struggles, failures, and successes of the Covid-19 pandemic? What will a post-pandemic world look like? In this class, you will answer these questions as they learn about the intersections of science and technology with the politics of race, ethnicity, gender, sexuality, and disability.

GWSS 3205. Life for Sale: Global Debates on Environment, Science and Society. (3 cr. ; A-F only; Spring Odd Year)
This class uses a social justice lens to explore the interrelations of scientific discoveries, unequal global economies, and commodification. We will look at practices, new technologies, and policies that are trenchant for the negative impacts they have on environments broadly defined, and for human and non-human populations. We will ask how these practices, technologies, and policies - and the social and economic contexts that produce them - variably impact the health, well being, and valuation of particular populations. In a series of interconnected themes, we will examine what factors produce food insecurity and for whom; where and why pollution of resources such as water happens; the history and current state of antibiotic resistance; climate change and its various effects; and how new technologies can be life-saving and life-denying according to the ways national and global policies determine who gains access and who does not. We will also look at the innovative ways grassroots movements tackle issues confronting particular groups, what constitutes positive social change and by whose definition, and potential ways forward. Prereq: soph or jr or sr

GWSS 3208. Transgender Health. (; 3 cr. ; A-F only; Every Summer)
Transgender Health is an online, 3 credit, 8-week course, in which we will learn how the social categories of sex and gender transform our understanding of health and medicine. This course offers feminist perspectives on transgender health care and considers how health care and social services professionals serve (or fail to serve) the diverse needs of transgender patients and clients. Students will engage with literature from feminist and queer studies, the media, public health, medicine, social work, and legal studies.

GWSS 3212. Chicana Feminism: La Chicana in Contemporary Society. (AH,DSJ; 3 cr. ; Student Option; Every Fall & Spring)
Scholarly/creative work of Chicanas or politically defined women of Mexican American community. Interdisciplinary. Historical context, cultural process, and autoethnography.

GWSS 3215. Bodies That Matter: Feminist Approaches to Disability Studies. (DSJ; 3 cr. ; Student Option; Periodic Spring)
The COVID-19 pandemic has made questions of disability and ableism central and visible for all of us as never before. Dis/ability is not a physical or mental defect but a form of social meaning mapped to certain bodies in larger systems of power and privilege. Feminist approaches explore dis/ability as a vector of oppression intersecting and constituted through race, class, gender, sexuality, and citizenship. The course examines ideologies of ableism and the material realities of such oppression, and works toward imagining and constructing a more just and equitable society. As health care is differentially distributed or limited for people who are sickened by COVID-19, we see that systems of social and economic power determine the life chances of those who claim, or are claimed by disability. Meanwhile, people with disabilities have developed many daily life strategies that can be models for everyone coping with the pandemic.

GWSS 3218. Politics of Reproduction. (3 cr. ; A-F only; Every Fall & Spring)
We often think of reproduction solely in terms of physiological events like pregnancy, delivery, or menstruation that occur in (or to) individual female bodies. Additionally, physicians and demographers appear to be the primary professional experts when it comes to managing and quantifying such reproductive events. In contrast, this class grapples with reproduction as a social and biological set of meanings and processes through which racial, gender, sexual, and socio-economic inequalities have been amplified, reconfigured, and contested across time and space. We trace how control over reproduction has been critical to a variety of professional, economic and political endeavors, including the rise and consolidation of disciplines like obstetrics-gynecology and demography; the maintenance of white privilege in colonial spaces and the metropole; post-World War II techno-scientific projects of "development" in the global South; and the emergence of the welfare state. The course identifies inequalities along the lines of race, class, gender, sexuality, and nationality in reproductive experiences and outcomes in a wide range of countries, including Cameroon, China, Cuba, Sudan, Soviet Russia, Romania, Zimbabwe, India, Senegal, Burkina Faso, South Africa, Nigeria, and the US. We locate individually embodied reproductive meanings and practices related to pregnancy, delivery, abortion, post-abortion care, contraception, sterilization, surrogacy, and child care in regional, national and global political economies. In other words, we investigate continuities and disruptions in reproductive politics between the individual body and the social body; the past, present and future; and local and global arenas. By exploring how reproduction operates domestically and globally as a mechanism of governance and social and economic stratification, we also consider possibilities for reproductive justice.

GWSS 3301W. Women Writers. (LITR,WI; 3 cr. ; Student Option; Every Spring)
Complexities of women's roles and way women writers have used various genres of literature to articulate personal and social struggles. Fiction, poetry, drama, critical nonfiction texts. Fidelity/ betrayal within relationships and societal perceptions. What images of femininity do these writers convey? How do formal and stylistic devices transform meaning?

GWSS 3302. Women and the Arts. (AH,DSJ; 3 cr. ; Student Option; Every Fall)
Study of women in the arts, as represented and as participants (creators, audiences). Discussion of at least two different art forms and works from at least two different U.S. ethnic or cultural communities.

GWSS 3303W. Writing Differences: Literature by U.S. Women of Color. (DSJ,WI,LITR; 3 cr. ; Student Option; Fall Odd Year)
Interpret/analyze poetry, fiction, and drama of U.S. women minority writers. Relationship of writer's history, ethnicity, race, class, and gender to her writings.

GWSS 3306. Pop Culture Women. (AH,DSJ; 3 cr. ; Student Option; Every Fall & Spring)
Contemporary U.S. feminism as political/ intellectual movement. Ways in which movement has been represented in popular culture.

GWSS 3307. Feminist Film Studies. (AH,DSJ; 3 cr. ; Student Option; Every Fall)
Construction of different notions of gender in film, social uses of these portrayals. Lectures on film criticism, film viewings, class discussions.

GWSS 3390. Topics in Visual, Cultural, and Literary Studies. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

GWSS 3402. Pleasure, Intimacy and Violence. (3 cr. ; Student Option; Spring Odd Year)
Gender/sexual?violence?to?poststructural,? anti?racist?theories/debates?about?social? construction?of?sexuality. How?intimacy/ violence?are?co?-constituted?within?normative frameworks?of?U.S.?governmentality.? Writings?by?black feminist?criminologists? who?have?linked?incarceration,?welfare? reform,?other?forms?of?state?regulation?to? deeply? systemic?forms?of?violence?against? people?of?color.

GWSS 3404. Transnational Sexualities. (GP; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Lesbian/gay lives throughout world. Culturally-specific/transcultural aspects of lesbian/ gay identity formation, political struggles, community involvement, and global networking. Lesbian/gay life in areas other than Europe and the United States.

GWSS 3406. Gender, Labor, and Politics. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Historical developments/contemporary manifestations of women's participation in labor force/global economy. Gender as condition for creation/maintenance of exploitable category of workers. How women's choices are shaped in various locations. Women's labor organizing. GWSS / Gender, Women, and Sexuality Studies / Gender Studies

GWSS 3406H. Honors: Gender, Work, Labor. (GP,SOCS; 3 cr. ; A-F only; Every Fall)
Historical developments/contemporary manifestations of women's participation in labor force/global economy. Gender as condition for creation/maintenance of exploitable category of workers. How women's choices are shaped in various locations. Women's labor organizing.

GWSS 3407. Women in Early and Victorian America: 1600-1890. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Varied experiences of women in American history from European settlement in North America to the end of the 19th century.

GWSS 3408. Women in Modern America. (; 3 cr. ; Student Option; Every Spring)
History of women in the United States from 1890 to present. Women's changing roles in politics, in labor force, in family, and in popular culture. Work, family, sexuality, gender ideologies, women's right struggles. Different experiences of women based on race, class, religion, and region.

GWSS 3409W. Asian American Women's Cultural Production. (AH,WI,DSJ; 3 cr. ; Student Option; Every Fall)
Analysis of media, art, literature, performance, on artistic contributions. History, politics, culture of Asian American women. Interpret cultural production to better understand role of race, gender, nation within American society/ citizenship.

GWSS 3415. Feminist Perspectives on Domestic Violence and Sexual Assault. (DSJ; 3 cr. ; A-F only; Every Fall)
History of and contemporary thinking about public policies and legal remedies directed toward domestic violence and sexual assault. How notions of public/private spheres and social constructions of gender roles, agency, and bodies contribute to attitudes/responses.

GWSS 3490. Topics in Political Economy and Global Studies. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

GWSS 3501. Gay, Lesbian, Bisexual and Transgender Social Movements in the United States. (3 cr. ; Student Option; Every Spring)
Interdisciplinary course. Development of GLBT social movements using social movement theory/service learning.

GWSS 3502. Transgender Studies Now. (DSJ; 3 cr. ; Student Option; Periodic Fall & Spring)
Transgender studies transforms ideas about gender, sexuality, identity, and biology. We look at knowledge is made about transgender life across disciplines and media: film, fiction, and the internet, as well as medicine, history, anthropology, and gender studies. Also asks how transgender social practices and community politics are embedded in dynamics of race, class, sexuality, nationality and ability.

GWSS 3503. Women and the Law. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Legal system as it relates to women: historical legal approach to issues related to constitutional rights of women.

GWSS 3505V. Girls, Girlhood, and Resistance. (WI; 0-3 cr. ; A-F only; Fall Odd Year)
A critical engagement with what constitutes "girlhood" and "resistance" through comparative analyses of girls' resistance and activism across North America.

GWSS 3505W. Girls, Girlhood, and Resistance. (WI; 3 cr. ; Student Option; Fall Odd Year)
A critical engagement with what constitutes "girlhood" and "resistance" through comparative analyses of girls' resistance and activism across North America.

GWSS 3515. Comparative Indigenous Feminisms. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
The course will examine the relationship between Western feminism and indigenous feminism as well as the interconnections between women of color feminism and indigenous feminism. In addition to exploring how indigenous feminists have theorized from 'the flesh' of their embodied experience of colonialism, the course will also consider how indigenous women are articulating decolonization and the embodiment of autonomy through scholarship, cultural revitalization, and activism.

GWSS 3549. U.S. Women's Legal History. (DSJ,HIS; 3 cr. ; A-F or Audit; Fall Odd Year)
Women's legal status, from colonial era through 20th century. Women's citizenship, civil rights. Marriage, divorce, and child custody. Reproductive/physical autonomy/integrity. Economic/educational equality. prereq: Soph or jr or sr

GWSS 3590. Topics: Social Change, Activism, Law, and Policy Studies. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics specified in Class Schedule.

GWSS 3611. Stories, Bodies, Movements. (6 cr. ; A-F only; Periodic Fall & Spring)
For most of us, stories seem to simply 'happen.' We listen to stories, we tell stories, we are moved by stories, and we retell stories. However, every act of telling stories involves making decisions or moves, and each re-telling of a familiar story may either give birth to new meanings, nuances, and affects, or, it may erase their possibility. Thus, each storyteller can be seen as a translator of stories with a responsibility to retell stories ethically. It is precisely through these translational acts that all politics become politics of storytelling. In this course, we will consider the ways in which the politics of the global and the intimate derive their meanings, effects, and affects from the circulation, transaction, and re-tellings of stories within and across borders. We will ask how a praxis of ethical engagement with politics can be imagined as a praxis of receiving and retelling stories. By immersing ourselves in the process of remembering, telling, listening, trimming, interweaving, distilling, and performing stories, we will consider how ethical receiving and retelling of stories involves continuous revising, repositioning, and re-theorizing of such vexed and entangled terrains and terminologies as identity, community, rights, and justice, as well as the contingent meanings of knowledge, truth, and ethics. This course engages this terrain through a mode of active learning in which all the participants will read and reflect, listen and discuss, tell and retell, watch and play, move and perform collectively. By becoming aware of the ways in which our minds-bodies-souls are inserted in the receiving and translation of stories, we will grapple together with the ways in which our bodies--as our embodiments--help to relationally shape not only our own performances but also our responses to the performances of other living and moving bodies around us. We will learn from writings, film, songs, and plays by writers, artists, activists, and thinkers from a range of historical and contemporary locations and struggles. These include: Marie Lily Cerat, W. E. B. Du Bois, Suheir Hammad, Sterlin Harjo, Naeem Inayatullah, June Jordan, AnaLouise Keating, Kauanui, J. Kehaulani, Audre Lorde, Viet Thanh Nguyen, Middle East Research and Information Project, Alok Rai, Nina Simone, Leanne Betasamosake Simpson, Sangtin Writers, Standing Rock Collective, Eve Tuck, Patrick Wolfe, and K. Wayne Yang. Many of the 'Acts' in this course will be co-facilitated with local or international artists and writers. There are no prerequisites for this course. We invite people from all kinds of locations and journeys to join us in this collective exploration. For further information, email: nagar@umn.edu. Grading Basis: A/F. The course requires all the participants to do sustained work and deep reflections, enjoy the process of imagining and creating with peers in a non-competitive environment.

GWSS 3626W. Witches, Seers and Saints: Women, Gender and Religion in the US. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the development and ramifications of gender ideologies within several religious groups in North America from the colonial period to the present and explores women's strategies that have contributed to and resisted these ideologies.

GWSS 3681. Gender and the Family in the Islamic World. (; 3 cr. ; A-F only; Periodic Spring)
This course explores the experiences of Muslim women and Muslim families from a historical and comparative perspective. Expanding the discussion on Muslim women's lives and experiences beyond the Middle East, by also centralizing on the experiences

of Muslim women and families outside of this geographical area highlights the complex and diverse everyday experiences of Muslim women around the world. This wider lens exposes the limitations intrinsic in the stereotypical representation of Muslims in general and Muslim women in particular. We will explore the intricate web of gender and family power relations, and how these are contested and negotiated in these societies. Some of the themes the course explores include the debates on Muslim women and colonial representations, sexual politics, family, education and health, women and paid work, gender and human rights, and Islamic feminisms debates. prereq: At least soph; 1001 recommended

GWSS 3690. Topics: Women, Society, and Race in the United States. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

GWSS 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student?s work is supervised and evaluated by a site coordinator or instructor

GWSS 3993. Directed Study. (1-12 cr. ; Student Option; Every Fall, Spring & Summer)
TBD Prereq instr consent, dept consent, college consent.

GWSS 3994. Directed Research. (1-12 cr. ; Student Option; Every Fall & Spring)
TBD Prereq instr consent, dept consent, college consent.

GWSS 4001. Nations, Empires, Feminisms. (; 3 cr. ; A-F only; Spring Even Year)
Feminist critiques of the nation-state and citizenship, political economy and development, globalization, and/or empire and colonialism. Overview of the broader literature and an interrogation of specific attendant questions (such as how do feminists theorize state violence; what are feminist and queer critiques of U.S. empire; and how do feminists theorize globalization from above and below).

GWSS 4002. Politics of Engagement and Social Justice. (CIV; 3 cr. ; A-F only; Fall Odd Year)
Ways in which feminist scholars have thought about and worked to complicate the opposition between theory and praxis. Diverse efforts by intellectuals situated within the Western academy to produce scholarship that is committed to deinstitutionalizing knowledge production and relevant to political struggles confronted by their own material and institutional inequalities.

GWSS 4003. Science, Bodies, Technologies. (; 3 cr. ; Student Option; Spring Odd Year)
Feminist approaches to scientific methods and practices. Relationship between scientific practices and social relations, emphasizing the larger social, political, and economic context in which scientific knowledge production takes place. How scientific knowledge structures relationships of power and inequality, and constructs understandings of bodies and identities. Ways in which science shapes meanings of sex, race, gender and sexuality.

GWSS 4103. Transnational Feminist Theories. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
Western/non-Western feminist theories in conversation. Historical, cultural, political context. Relation of theory to activism.

GWSS 4107. Feminist Methods. (3 cr. ; A-F only; Every Fall)
This course considers the relationship between theory and research in feminist studies. Students review and examine the key issues of feminist scholarship. Methods and methodologies are learned through developing a research proposal for the senior capstone.

GWSS 4108. Senior Capstone: Writing. (3 cr. ; A-F only; Every Fall & Spring)
The GWSS 4108 is the capstone of a GWSS major?s education in GWSS and an opportunity for them to produce a thorough and significant research project. While the final version of the project can take several different forms, each one requires the student to do a deep examination of your topic. GWSS 4108 is a 3-credit class that allows students the opportunity to be surrounded by other GWSS majors as you work through their projects collaboratively. This class allows students to keep organized and on track with their projects, be a part of a writing and research community, and have their work read and critiqued by others so their end results are nuanced, polished pieces of writing and research.

GWSS 4204. Sex, Love, & Disability. (3 cr. ; Student Option; Periodic Fall & Spring)
In America's cultural imagination, people with disabilities are figured either as childlike and asexual, or improperly hypersexual. For disabled people (or anyone perceived as disabled) this paradox has meant denial of sexual agency and gender expression, histories of forced sterilization and institutionalization, sociopolitical marginalization, and great risk of sexual violence (and even death). In this course, we'll examine this history to better understand our contemporary present. We'll analyze constructions of disability and sexuality as they are interwoven with gender, class, race, and citizenship. We will ask: What might it mean to desire disability? Is there a disability sexual culture? Do disabled people queer sex, or does sexuality queer disability? What is the relationship between GLBTQ and disability rights and liberation movements? Drawing from feminist, queer, and disability studies, we'll answer these questions (and more) by examining how the imagined able-bodymind structures our understanding of gender/sexuality, and how disability sexual cultures resist these norms.

GWSS 4303W. Writing Differences: Literature by U.S. Women of Color. (DSJ,WI,LITR; 3 cr. ; Student Option; Fall Odd Year)
Interpret/analyze poetry, fiction, drama of U.S. women minority writers. Relationship of writer's history, ethnicity, race, class, gender to writings.

GWSS 4401. Chicana/Latina Cultural Studies. (AH,DSJ; 3 cr. ; Student Option; Fall Even Year)
Readings in Chicana/Latina cultural studies. TV, film, art, music, dance, theatre, literature. Identity/sexuality. Production of culture/theory.

GWSS 4403. Queering Theory. (3 cr. ; Student Option; Periodic Fall & Spring)
This course will give you a solid theoretical foundation in the field of queer studies in addition to explaining its relation to other scholarly traditions, including (but not limited to) feminist theory, GLBT studies, literary studies, psychoanalysis, and postmodernism. Over the course of the semester you will examine the historical forces that birthed queer politics and theory, become conversant in its conceptual basis, interrogate and analyze its various uses and applications, and finally apply it in your own arguments. prereq: Any GWSS or GLBT course

GWSS 4406. Black Feminist Thought in the American and African Diasporas. (; 3 cr. ; Student Option; Periodic Spring)
Critically examine spatiality of African descendant women in Americas/larger black diaspora. Writings from black feminist/queer geographies, history, contemporary cultural criticism. Recent black feminist theorizing.

GWSS 4415. Transnational Body Politics. (GP; 3 cr. ; A-F only; Periodic Fall & Spring)
Our bodies are always already modified. How we shape our bodies can express our deepest feelings about who we are. Body modification can also represent cultural and subcultural identifications or expectations based on gender, race, class, and sexuality. But what we do with our bodies is never separate from the politics of cultural difference and fluctuating ideas of what is acceptable or unacceptable, civilized or uncivilized. These ideas are historically and culturally specific. This course looks at body modification on a transnational scale to ask how we come to know what differentiates "mutilation" from "correction." We ask how feminist, queer, and critical race theories illuminate these debates, reading across historical, anthropological, medical and literary texts. Weekly topics include gender, race and cosmetic surgery; skin whitening technologies; transnational gender reassignment; surgical tourism; female genital cutting; piercing, tattooing and scarification; the cultural politics of hair; and body modification in the context of transnational feminized labor.

GWSS 4502. Gender and Public Policy. (; 3 cr. ; Student Option; Periodic Fall & Spring)

Public policy issues, processes, and histories as these affect women-, children-, and gender-related issues.

GWSS 4590. Topics: Social Change, Activism, Law, and Policy Studies. (; 3 cr. ; Student Option; Spring Even Year)
Topics specified in Class Schedule.

GWSS 4980. Directed Instruction. (1-8 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study.

GWSS 4993. Directed Study. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
TBD prereq: Filled out student/faculty contract, instr consent, dept consent, college consent

GWSS 4994. Directed Research. (1-8 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study.

GWSS 5104. Transnational Feminist Theory. (; 3 cr. ; Student Option; Fall Odd Year)
Third World and transnational feminisms. Interrogating the categories of "women," "feminism," and "Third World." Varieties of power/oppression that women have endured/ resisted, including colonization, nationalism, globalization, and capitalism. Concentrates on postcolonial context.

GWSS 5190. Topics: Theory, Knowledge, and Power. (; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Topics specified in Class Schedule.

GWSS 5290. Topics: Biology, Health, and Environmental Studies. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Topics specified in class schedule.

GWSS 5390. Topics: Visual, Cultural, and Literary Studies. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

GWSS 5406. Black Feminist Thought in the American and African Diasporas. (; 3 cr. ; Student Option; Periodic Spring)
Critically examines spatiality of African descendant women in Americas/larger black diaspora. Writings from black feminist/queer geographies, history, contemporary cultural criticism. Recent black feminist theorizing.

GWSS 5490. Topics: Political Economy and Global Studies. (; 3 cr. [max 12 cr.] ; Student Option; Every Spring)
Topics specified in Class Schedule.

GWSS 5502. Gender and Public Policy. (3 cr. ; Student Option; Periodic Fall & Spring)
Public policy issues, processes, and histories as these affect women-, children-, and gender-related issues.

GWSS 5503. Queering Theory. (3 cr. ; Student Option; Periodic Fall & Spring)
This course will give you a solid theoretical foundation in the field of queer studies in addition to explaining its relation to other scholarly traditions, including (but not limited to) feminist theory, GLBT studies, literary studies, psychoanalysis, and postmodernism. Over the course of the semester you will examine the historical forces that birthed queer politics and theory, become conversant in its conceptual basis, interrogate and analyze its various uses and applications, and finally apply it in your own arguments. prereq: Any GWSS or GLBT course

GWSS 5993. Directed Study. (; 1-12 cr. ; Student Option; Every Fall, Spring & Summer)
TBD

GWSS 5994. Directed Instruction. (; 1-12 cr. [max 36 cr.] ; Student Option; Every Fall, Spring & Summer)
TBD

GWSS 5995. Directed Research. (; 1-8 cr. [max 36 cr.] ; Student Option; Every Fall & Spring)
TBD

General Dentistry (GEND)

GEND 5151. Advanced General Dentistry Seminar I. (; 5-10 cr. ; S-N or Audit; Every Fall & Summer)
Clinical seminars with emphasis on treatment planning, case presentation, techniques and materials, comprehensive oral healthcare and maintenance, and issues in practice management. Correlated with concurrent clinical experiences.

GEND 5152. Advanced General Dentistry Seminar II. (; 5-10 cr. ; S-N or Audit; Every Fall)
Clinical seminars with emphasis on treatment planning, case presentation, techniques and materials, comprehensive oral healthcare and maintenance, and issues in practice management. Correlated with concurrent clinical experiences.

GEND 5153. Advanced General Dentistry Seminar III. (; 2-10 cr. ; S-N or Audit; Every Fall & Spring)
Clinical seminars with emphasis on treatment planning, case presentation, techniques and materials, comprehensive oral healthcare and maintenance, and issues in practice management. Correlated with concurrent clinical experiences.

GEND 5254. Advanced General Dentistry Clinic I. (; 5-15 cr. ; S-N or Audit; Every Fall & Summer)
Comprehensive oral health care delivered in a variety of settings, emphasizing complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

GEND 5255. Advanced General Dentistry Clinic II. (; 5-15 cr. ; S-N or Audit; Every Fall)
Comprehensive oral health care delivered in a variety of settings, emphasizing complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

GEND 5256. Advanced General Dentistry Clinic III. (; 5-15 cr. ; S-N or Audit; Every Fall & Spring)
Comprehensive oral health care delivered in a variety of settings, emphasizing complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

GEND 5261. Advanced General Dentistry Clinical Administration I. (; 5-10 cr. ; S-N or Audit; Periodic Fall & Spring)
Field experience in community dental clinic practice and administration.

GEND 5262. Advanced General Dentistry Clinical Administration II. (; 5-10 cr. ; S-N or Audit; Every Fall)
Field experience in community dental clinic practice and administration.

GEND 5263. Advanced General Dentistry Clinical Administration III. (; 1-10 cr. ; S-N or Audit; Every Fall & Spring)
Field experience in community dental clinic practice and administration.

GEND 5264. Advanced General Dentistry Clinic IV. (; 1-15 cr. ; S-N or Audit; Every Summer)
Comprehensive oral health care delivered in a variety of settings, emphasizing complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

GEND 5265. Advanced General Dentistry Clinic V. (; 1-15 cr. ; S-N or Audit; Every Fall)
Comprehensive oral health care delivered in a variety of settings, emphasizing complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

GEND 5266. Advanced General Dentistry Clinic VI. (; 1-15 cr. ; S-N or Audit; Every Fall & Spring)
Comprehensive oral health care delivered in a variety of settings, emphasizing complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

Genetics, Cell Biol/Developmnt (GCD)

GCD 2002W. Ethical and Social Challenges in Genetics. (TS,WI; 3 cr. ; A-F only; Every Fall)
For nonscientists. Advances in genetics and their application to society. Ethical and social issues of advancements in genomics and genetics in our everyday lives. prereq: BIOL 1009 or equiv

GCD 2171. Stem Cells in Biomedicine and Society. (3 cr. [max 6 cr.] ; Student Option; Every Fall)
A course that focuses on the general properties of stem cells, their potential uses in biomedicine, and the potential impact of their use on society. The course is suitable for students who have successfully completed at least one general biology course that included coverage of basic genetics and cell biology. Stem cells are one of the rapidly growing topics in biology. Research into stem cells ranges from basic biology to regeneration to clinical applications to ethics. In this course, you will learn the general features of embryonic, artificial, or adult-tissue stem cells: how they contribute to tissue regeneration, how scientists create and manipulate stem cells, what scientists do with them, what

the public considers stem cell research and why. Then, you will learn about bone marrow transplantation, an established stem cell-based therapy, and various diseases and potential applications of stem cells to treat/cure the diseases. By the end of this course, you will have deeper insights into stem cells. Recommended prerequisites: BIOL1009 (General Biology), BIOL1951 (Foundations of Biology Lecture I for Biological Sciences Majors) or an equivalent General Biology course that includes basic coverage of genetics and cell biology This course can NOT be used as an elective for some CBS majors, such as the GCD major. Check the Program Requirements for your major to determine if it can be used as an elective.

GCD 3022. Genetics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Mechanisms of heredity, implications for biological populations. Applications to practical problems. prereq: Introductory biology course such as Biol 1009

GCD 3033. Principles of Cell Biology. (; 3 cr. ; A-F only; Every Fall & Spring)
Components and activities common to eukaryotic cells. Chromosomes, membranes, organelles and the cytoskeleton, and processes including cellular communication, replication, motility, transport and gene expression. Relevance to human health and medicine. Appropriate for non-CBS majors. prereq: BIOL 1009 or equiv

GCD 3485. Bioinformatic Analysis: Introduction to the Computational Characterization of Genes and Proteins. (; 3 cr. ; A-F only; Every Spring)
Use of computer applications in manipulation/analysis of DNA, RNA, and protein sequences. prereq: One semester of college biology

GCD 3486. Personal Genome Analysis. (4 cr. ; A-F only; Every Fall)
In this course, students will analyze their personal genome data. They will gain experience using computer applications and online databases of human genetic information. They will learn about their ancestry, their regional origins, and their risks of genetically linked disease. They will learn how to put human genome results into context and how to explain human genomics in non-technical language. Prerequisite is an introductory biology course and Biol 3020 is recommended.

GCD 4005W. Cell Biology-Writing Intensive. (WI; 4 cr. ; A-F only; Every Spring)
Processes fundamental to cells. Emphasizes eukaryotic cells. Assembly/function of membranes/organelles. Cell division, cell form/movement, intercellular communication, transport, secretion pathways. Cancer cells, differentiated cells. prereq: GCD major,3020, 4003

GCD 4025. Cell Biology, Development & Regeneration Laboratory. (3 cr. ; Student Option; Every Spring)
This course is designed for juniors and seniors to learn experimental approaches and techniques to study cellular processes and stem cell biology during animal development and tissue regeneration. Students will be exposed to the advantages of different model systems that include cultured cells, chick, C. elegans and zebrafish. Students will learn to manipulate the cytoskeleton, perform cell differentiation, RNAi and regeneration assays, and to image both fixed tissue and live animal samples with conventional light microscopes as well as cutting edge technology, including super-resolution and multi-photon microscopes. prereq: Biol 4004 or instr consent

GCD 4034. Molecular Genetics and Genomics. (; 3 cr. ; Student Option; Every Fall)
Molecular genetics and genomics of eukaryotes. Course emphasizes mechanisms of gene regulation and how these are studied. Current strategies used to study the activity and function of genes and genomes, including the role of chromatin, will be covered. Techniques will include gene knockouts/knockdown, genome engineering, genome-wide analysis of RNA and protein expression and function, as well as genome-wide protein binding and chromatin interaction mapping. Technologies covered will include next-generations and third-generation sequencing and CRISPR-based strategies for gene modification and precision gene regulation. Students will analyze and present recent primary papers in molecular genetic and genomics.

GCD 4111. Histology: Cell and Tissue Organization. (4 cr. ; Student Option; Every Spring)
Structure/function of vertebrate tissues/organs. Electron microscopy, light microscopy, physiology, cell biology of higher animals. Light microscopy of mammalian tissues. prereq: 3033 or Biol 4004 or instr consent

GCD 4134. Endocrinology. (; 3 cr. ; Student Option; Every Spring)
Survey of structure and function of invertebrate and vertebrate endocrine systems. prereq: BIOL 3211 or BIOC 3021 or BIOC 3022 or BIOC 4331 or instr consent

GCD 4143. Human Genetics and Genomics. (; 3 cr. ; Student Option; Every Spring)
Human Genetics ? the science of how our genomes function, vary, and shape our unique, individual characteristics ? is a rapidly expanding field with major implications for medical and fundamental research, clinical practice, and many other areas. In this course, students will learn about the principles of human genetics & genomics at the levels of molecules, cells, individuals, and populations. Topics include patterns of inheritance; the molecular causes and biochemical basis of genetic disorders; disease gene identification; the origin and distribution of human genetic variation; genetic influences on common, complex diseases; epigenetics and regulation of gene expression; genomic technologies for understanding human genomes; cancer genetics; behavioral genetics; human ancestry and evolution; applications such as genetic screening, genetic counseling, and gene therapy; and ethical questions raised by emerging abilities to edit the human genome, modify the human germline, and many more. prereq: GCD 3022 or Biol 4003 or instr consent

GCD 4151. Molecular Biology of Cancer. (3 cr. ; A-F or Audit; Every Fall)
Regulatory pathways involved in directing normal development of complex eukaryotic organisms, how disruptions of these pathways can lead to abnormal cell growth/cancer. Causes, detection, treatment, prevention of cancer. prereq: Biol 4003

GCD 4161. Developmental Biology. (; 3 cr. ; Student Option; Every Fall)
Mechanisms that govern development from gametogenesis through fertilization. Embryogenesis/postembryonic development. Mechanisms of morphogenesis/differentiation. Classical/molecular approaches in various model organisms. Genetic models such as bacteriophage, yeast, Drosophila, C. elegans, Arabidopsis, zebrafish, and the mouse. prereq: Biol 4003; concurrent registration is required (or allowed) in BIOL 4004 irecommended

GCD 4171. Stem Cells in Biology and Medicine. (; 3 cr. ; A-F only; Every Spring)
Contemporary stem cell biology with emphasis on mechanisms/applications. Embryonic, tissue-specific, and induced pluripotent stem cells and potential uses in human disease. recommended prerequisites BIOL 4003 Genetics; recommended prerequisite or corequisite BIOL 4004 Cell Biology This course can be used as an elective for certain CBS majors, such as the GCD major. Check the Program Requirements for your major to determine if it can be used as an elective.

GCD 4793W. Directed Studies: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall & Summer)
Writing Intensive Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. One main feature of this course is that the student will receive writing instruction and the written output of the course will be revised during the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. This course is graded S/N and approval of the DUGS is

required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

GCD 4794W. Directed Research: Writing Intensive. (WI; 1-7 cr. [max 42 cr.] ; S-N only; Every Fall & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

GCD 4993. Directed Studies. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

GCD 4994. Directed Research. (; 1-7 cr. [max 42 cr.] ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a Research/Directed Studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

GCD 5005. Computer Programming for Biology. (3 cr. ; Student Option; Every Fall)
Computer programming skills with applications in biology. Design/build new computer programs for applications in cell/developmental biology, including modeling of biological processes, advanced data analysis, automated image analysis. prereq: BIOL 4003 or GCD 3033, general statistics course

GCD 5036. Molecular Cell Biology. (; 3 cr. ; Student Option; Every Fall)
Analysis of dynamic cellular activities at the molecular level in cell biological fields that are experiencing new research advances not yet reflected in textbooks. Significant emphasis is placed on understanding the experimental basis of our current knowledge of cellular processes through analysis of scientific papers. Project and presentation-based assessments of learning outcomes. prereq: Biol 4004 or instr consent; [sr or grad student] recommended

GCD 5111. Quantitative Fluorescence Microscopy. (3 cr. ; A-F only; Every Summer)
Fluorescence microscopy is an essential technique to probe the inner workings of cells and tissues. You will learn ?hands on? the inner workings of fluorescent microscopes, how to set up and acquire fluorescent images using microscopes, and how to quantitatively analyze image data using FIJI (ImageJ) software. Undergraduate students require instructor permission for enrollment. Graduate students are allowed to register for 5111 without instructor permission.

Geographic Information Science (GIS)

GIS 5530. GIS Internship. (; 1-3 cr. [max 6 cr.] ; S-N only; Every Fall & Spring)
Practical hands-on experience using GIS to solve problems in a real-world work environment. prereq: instr consent, strong GIS/mapping skills

GIS 5555. Basic Spatial Analysis. (; 3 cr. ; Student Option; Every Fall)
How to use spatial data to answer questions on a wide array of social, natural, and information science issues. Exploratory data analysis/visualization. Spatial autocorrelation analysis/regression. prereq: [STAT 3001 or equiv, MGIS student] or instr consent

GIS 5571. ArcGIS I. (; 3 cr. ; Student Option; Every Fall)
First of a two-course series focusing on ArcGIS Desktop. Overview of ArcGIS system and its use for spatial data processing. Data capture, editing, geometric transformations, map projections, topology, Python scripting, and map production. prereq: [GEOG 5561 or equiv, status in MGIS program, familiarity with computer operating systems] or instr consent

GIS 5572. ArcGIS II. (; 3 cr. ; Student Option; Every Spring)
Continues GIS 5571. Raster analysis, dynamic segmentation, geometric networks, geocoding, Python scripting, and data interoperability. Substantial projects include map and poster design and production. prereq: [5571, [GEOG 5561 or equiv], in MGIS program] or instr consent

GIS 5573. Introduction to Digital Mapping: ArcGIS Basics. (2 cr. ; A-F only; Every Fall)
Desktop mapping functions using ArcGIS software. Application of systems to display/analysis of geographical data. prereq: [GEOG 5561 or equiv, in MGIS program] or instr consent

GIS 5574. Web GIS and Services. (3 cr. ; Student Option; Every Fall)
Plan, design, develop, publish web-based GIS solution. Build websites, prepare data for web. Commercial software, Open Source software, volunteer geographic information, open GIS standards/developing web GIS application. Hands-on experience with variety of web GIS technologies/software. prereq: [GEOG 5561 or equiv, in MGIS program] or instr consent

GIS 5575. Practical Surveying for GIS. (2 cr. ; Student Option; Every Spring)
Surveying techniques/relationship of GPS to GIS professionals. Geodesy, data adjustment, datums, ellipsoids, coordinate systems, transformations. prereq: GEOG 5561 or equiv in MGIS program or instr consent

GIS 5576. Spatial Digital Humanities. (3 cr. ; Student Option; Every Spring)
Introduction to Spatial Digital Humanities GIS 5576 is a basic overview of desktop GIS (both Esri and open source), as well as an introduction to a number of other mapping techniques (such as Esri Maps for Office, ArcGIS Online, web mapping basics, georeferencing historical maps, etc) in addition to digital scholarship techniques. Course objectives include: understanding the basics of mapping and geospatial information using GIS; documenting and managing spatial data using coherent/standardized methods; understanding several spatial analysis methods that are relevant to student research area; and applying spatial research methods into student research.

GIS 5577. Spatial Database Design and Administration. (3 cr. ; Student Option; Every Spring)
Spatial database design, development planning/management, maintenance, security, access/distribution, and documentation. prereq: instr consent

GIS 5578. GIS Programming. (3 cr. ; Student Option; Every Spring)
Programming techniques using Python and other languages specifically relating to GIS technologies. prereq: instr consent

GIS 5590. Special Topics in GIS. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Topics vary according to curricular needs, technological developments in field.

Geography (GEOG)

GEOG 1301W. Our Globalizing World. (GP,WI,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to geographical understandings of globalization and of connections/differences between places.

GEOG 1372. Geography of Global Cities. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Urban forms/processes. Uses key global cities as examples. Political, historical, and economic contexts of cities. Planning ideologies. Globalization. Race/segregation. Population growth. Environmental problems. Current issues in global urbanization.

GEOG 1403. Biogeography of the Global Garden. (BIOL,ENV; 4 cr. ; Student Option; Every Fall & Spring)
The geography of biodiversity and productivity, from conspicuous species to those that cause human disease and economic hardship. The roles played by evolution and extinction, fluxes of energy, water, biochemicals, and dispersal. Experiments demonstrating interactions of managed and unmanaged biotic with the hydrologic cycle, energy budgets, nutrient cycles, the carbon budget, and soil processes.

GEOG 1403H. Honors: Biogeography of the Global Garden. (BIOL,ENV; 4 cr. ; A-F only; Every Fall & Spring)
The geography of biodiversity and productivity, from conspicuous species to those that cause human disease and economic hardship. The roles played by evolution and extinction, fluxes of energy, water, biochemicals, and dispersal. Experiments demonstrating interactions of managed and unmanaged biotic with the hydrologic cycle, energy budgets, nutrient cycles, the carbon budget, and soil processes. prereq: Honors

GEOG 1425. Introduction to Weather and Climate. (ENV,PHYS; 4 cr. ; Student Option; Every Fall & Spring)
A pre-calculus introduction to the nature of the atmosphere and its behavior. Topics covered include atmospheric composition, structure, stability, and motion; precipitation processes, air masses, fronts, cyclones, and anticyclones; general weather patterns; meteorological instruments and observation; weather map analysis; and weather forecasting.

GEOG 1502. Mapping Our World. (SOCS,TS; 3 cr. ; Student Option; Every Fall & Spring)
Learn how maps and other spatial technologies like phones, drones, and GPS work. Use web-based tools to make maps for class, jobs, and fun. Explore how mapping is a useful lens through which to view interactions between technology and society, and see how mapping technology saves lives, rigs elections, and spies on people.

GEOG 1913. Living with Innovation. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This seminar will examine innovations ranging from artificial intelligence (AI) and information technology to nano-materials and genetically modified organisms (GMOs). The message will be that we need innovation to address big world challenges such as a global population on its way to 10 billion and the pressures that brings to food supply, pollution, and climate change. Yet the innovations themselves can cause problems that include threats to health, environment, and social order. Exploring how science can be used to anticipate and manage these risks will be a core theme. Students will read, discuss, and debate cutting edge material from the scientific literature and popular press. Students can therefore expect to take away from this course an understanding of innovation and risk, of key world problems that include hunger, climate change, pollution, and cyber issues, and to develop skills in critical thinking and communication.

GEOG 1914. The Border Crossed Us: Latinx Life and Justice in the City. (; 3 cr. ; A-F only; Periodic Fall)
For decades now Latinx immigrant rights activists have chanted, ?We didn?t cross the border, the border crossed us? ? exposing how the U.S. imposed a southern border that seized massive swaths of Mexican territory and continues to supersede its borders through military interventions across Latin America that force people to leave. The crisis we are witnessing at the U.S.-Mexico border is not new and is historically rooted in U.S. imperialism and colonialism. Yet, Latinx migrants continue to move, live and collectively organize to build a more socially just world across U.S. cities. This seminar will examine the multifaceted dimensions of the Latinx urban experience in the U.S., with a special focus on the Twin Cities context. Drawing on diverse scholarship across urban geography, Latinx Studies and feminist theory, we will explore why Latinx people are here? What challenges they face? How they make home across and beyond borders? And how they mobilize for social justice in the city? Students will have the opportunity to learn from local Latinx community-based organizations working on various issues from migrant rights, housing justice and food justice. Students will also have the opportunity to go on several field trips to learn about Latinx life and activism in the Twin Cities.

GEOG 1915. Cultural heritage and environmental change in Gullah/Geechee Nation. (; 3 cr. ; A-F only; Periodic Fall)
Sea level rise and climate change pose serious challenges for the well-being of people living along the coast. When responding to these challenges, communities, scientists, and governments have to take account of the way in which some communities have deep cultural ties to the land they inhabit. Co-taught by Queen Quet, the Chieftess and Head of State of the Gullah/Geechee Nation and Kate Derickson, faculty in Geography and long time collaborator of Queen Quet?s, this course will explore the thorny challenges at the intersection of cultural heritage and environmental change by engaging with the case of the Gullah/Geechee people. The Gullah/Geechee people are descended from freed and escaped enslaved Africans brought to the Southeast coast and the Sea Islands in part due to their knowledge of agriculture to be enslaved on rice, cotton, and indigo plantations. Today, many Gullah/Geechee people still live on the same land that their ancestors were enslaved on. Their ancestors bought this land during Reconstruction and continued to practice traditional farming and it and traditional fishing in the surrounding waterways. The Gullah/Geechee culture is inextricably tied to the land and the water of the Sea Islands and the coast, a connection that has to be accounted for in efforts to mitigate the effects of climate change and inform future planning and community development in the region. Students will spend the course in a virtual ?studio? setting on campus once weekly - learning, discussing, and exploring the history and culture of the Gullah/Geechee people and the causes and consequences of environmental change in the region. We will also explore different models, ethics, and approaches to engaged scholarship. Students will be divided into groups with a region of Gullah/Geechee Nation to focus on. Each group will produce a StoryMap with archival data, photos, and other relevant data and information collected during and after the field trip. Training in building StoryMaps will be provided. Grades will be assessed on an individual and group basis.

GEOG 1973. Geography of the Twin Cities. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Social and physical characteristics of the Twin Cities. Their place in the urban network of the United States.

GEOG 3101. Geography of the United States and Canada. (SOCS,TS; 4 cr. ; Student Option; Every Fall & Spring)
Analysis of the ways in which the aspirations and abilities of diverse groups of people interact with the complexities of the natural environment to produce the contemporary pluralistic cultures and regional differentiation of the United States and Canada.

GEOG 3111. Geography of Minnesota. (; 3 cr. ; Student Option; Every Spring & Summer)
The evolution of Minnesota and its current geographical characteristics. The state is a unique political entity that possesses similarities with other states because of the homogenizing influence of the federal government.

GEOG 3121. Geography of Latin America. (3 cr. ; Student Option; Every Fall)
This course will look at historical and contemporary Latin America to give students

an idea about the varied political, economic, and cultural practices in the Caribbean, Central America, and South America. Readings will focus mostly on the experiences and struggles of Afro-Latin, indigenous, and working-class populations in Latin America, in order that we might learn about the region from otherwise marginalized viewpoints. Course assignments will ask students to critically reflect on the power relations that shaped and continue to shape the region. Course topics include colonialism, state formation, present-day territorial contestation, and the current political shifts that dominate the news headlines across the region. At the end of the semester students will have a solid understanding of the forces responsible for conditions in present-day Latin America.

GEOG 3145. The Islamic World. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Foundation of Islam in Arabian Peninsula, its spread to Asia and Africa. Islamic civilization, influence on Europe before rise of capitalism. Rise of Capitalist Europe, colonization of Islamic World Islamic resurgence and post-colonial world. State-society and development. Culture/conflict in Moslem societies. Gender and Islam. Islamic World and the West. Moslems in North America and Europe. Case studies.

GEOG 3161. Europe: A Geographic Perspective. (GP; 3 cr. ; Student Option; Fall Even Year)
Comparative analysis and explanation of Europe's physical, demographic, ethnic/cultural, economic, political, and urban landscapes. European integration--the European Union. Transformation of Eastern Europe.

GEOG 3211. East Asia. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Physical and human geography of Japan, mainland China and Taiwan, North and South Korea; population pressure, economic and urban development, and international relations.

GEOG 3331. Geography of the World Economy. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Geographical distribution of resources affecting development; location of agriculture, industry, services; geography of communications; agglomeration of economic activities, urbanization, regional growth; international trade; changing global development inequalities; impact of globalizing production and finance on the welfare of nations, regions, and cities.

GEOG 3361W. Geography and Public Policy. (WI; 3 cr. ; Student Option; Every Fall)
Nature/effects of federal policy in the United States. How documents produced as policy are crafted/implemented. Policies relating to food/agriculture, forestry, wildlife, and transportation.

GEOG 3371W. Cities, Citizens, and Communities. (DSJ,WI; 3 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Introduction to cities and suburbs as unique crossroads of cultural, social, and political processes. Competing/conflicting visions of city life, cultural diversity, and justice. Focuses on the American city.

GEOG 3373. Changing Form of the City. (GP,HIS; 3 cr. ; Student Option; Every Spring)
Urban origins, ancient cultures/cities, the medieval city, rediscovery of planning, colonial cities. Industrialization and urban expansion. Speculative cities, utopian cities, planning triumphs/disasters. Cities as reflections of society, culture, the past.

GEOG 3374W. The City in Film. (AH,WI; 4 cr. ; Student Option; Every Spring)
Cinematic portrayal of changes in 20th-century cities worldwide including social and cultural conflict, political and economic processes, changing gender relationships, rural versus urban areas, and population and development issues (especially as they affect women and children).

GEOG 3376. Political Ecology of North America. (ENV; 3 cr. ; Student Option; Every Fall)
Social production of nature in North America related to questions of social/environmental justice. Economic, political, cultural, ecological relations that shape specific urban/rural environments, social movements that have arisen in response to environmental change. Importance of culture/identity in struggles over resources/environments.

GEOG 3377. Music in the City. (AH,DSJ; 3 cr. ; A-F or Audit; Every Spring)
Geographical conceptions of place, space, embodiment, identity. Case studies of music.

GEOG 3379. Environment and Development in the Third World. (ENV,SOCS; 3 cr. ; A-F or Audit; Every Spring)
Concepts for analyzing relations between capitalist development and environment in Third World. Historical geography of capitalist development. Case studies. Likelihood of social/environmental sustainability. prereq: Soph or jr or sr

GEOG 3381W. Population in an Interacting World. (GP,WI,SOCS; 3 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Comparative analysis and explanation of trends in fertility, mortality, internal and international migration in different parts of the world; world population problems; population policies; theories of population growth; impact of population growth on food supply and the environment.

GEOG 3388. Going Places: Geographies of Travel and Tourism. (CIV; 3 cr. ; A-F only; Every Spring)
Global flows of tourism from perspective of debates about consumption, development, identity, and the environment. Close reading, field trips, discussion of films, research paper.

GEOG 3401. Geography of Environmental Systems and Global Change. (ENV; 3 cr. [max 4 cr.] ; Student Option; Every Spring)
Geographic patterns, dynamics, and interactions of atmospheric, hydrospheric, geomorphic, pedologic, and biologic systems as context for human population, development, and resource use patterns.

GEOG 3411W. Geography of Health and Health Care. (WI; 3 cr. [max 4 cr.] ; Student Option; Every Fall)
Application of human ecology, spatial analysis, political economy, and other geographical approaches to analyze problems of health and health care. Topics include distribution and diffusion of disease; impact of environmental, demographic, and social change on health; distribution, accessibility, and utilization of health practitioners and facilities.

GEOG 3423. Urban Climatology. (3 cr. ; Student Option; Every Spring)
Urban climatology focuses on how cities modify the local environment. Initial focus is on urban energy balance as the basis of most urban-climate research. The course also explores how atmospheric composition, urban hydrology, and urban ecosystems affect the urban climate, and how urban climates are linked to regional and global climate change.

GEOG 3431. Plant and Animal Geography. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to biogeography. Focuses on patterns of plant/animal distributions at different scales over time/space. Evolutionary, ecological, and applied biogeography. Paleobiogeography, vegetation-environment relationships, vegetation dynamics/disturbance ecology, human impact on plants/animals, nature conservation. Discussions, group/individual projects, local field trips.

GEOG 3511. Principles of Cartography. (; 4 cr. ; Student Option; Every Spring)
History and development of US academic cartography, coordinate systems and map projections, data classification and map generalization, methods of thematic symbolization, and cartographic design. A series of computer-based lab exercises will apply conceptual lecture material to the creation of thematic maps. prereq: 3 cr in geog or instr consent

GEOG 3531. Numerical Spatial Analysis. (; 4 cr. ; Student Option; Every Fall & Summer)
Introduction to theoretical and applied aspects of geographical quantitative methods with a focus on spatial analysis. Emphasis placed on the analysis of geographical data for spatial problem solving in both the human and physical areas of the discipline.

GEOG 3541. Principles of Geocomputing. (3 cr. ; Student Option; Every Spring)
The availability of computing infrastructures such as high-performance and cloud computing, high-speed networks, and rich data has led to a new scientific paradigm using computational approaches, termed computational science. Geocomputation is the "application of a computational science paradigm to study a wide range of problems in geographical and earth systems (the geo) contexts" (Openshaw, 2014). This course will introduce students to geocomputation as well as related areas including big spatial data, and cyberinfrastructure. Students will engage in hands-on exercises learning principles and best-practices in geocomputing. The ability to program is an essential skill for GIScientists. Learning to program takes time and a lot

of practice, and in this course students will learn how to develop programs in the Python programming language to solve geospatial problems.

GEOG 3561. Principles of Geographic Information Science. (; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to study of geographic information systems (GIS) for geography and non-geography students. Topics include GIS application domains, data models and sources, analysis methods and output techniques. Lectures, readings and hands-on experience with GIS software. prereq: Jr or sr

GEOG 3573. Introduction to Digital Mapping: ArcGIS Basis. (2 cr. ; A-F only; Every Fall)
Desktop mapping functions using ArcGIS software. Application of systems to display/analysis of geographical data.

GEOG 3605. Geographic Perspectives on Planning. (; 3 cr. [max 4 cr.] ; Student Option; Every Fall)
The purpose of this course is to introduce the students to the discipline of urban planning, and to the various challenges planning has aimed to respond during its history. How and why did cities come into being before the invention of modern urban planning? What were the challenges that modern urban planning arose to encounter in the late 20th century? How have the planning challenges changed since then, and how have planning tools and planning systems evolved since the early 21st century in different countries? During the course, we will also discuss the role of planning in contemporary society, asking who needs planning and why. How does planning respond to political struggles and conflicts of interests in cities today? Furthermore, we will reflect on the academic status of urban planning and ask: to what extent can planning be based on knowledge and theory? To answer these questions, we will study history of planning, get acquainted with the basics of planning theory, and look at various international examples of planning systems and planning practice drawn from a variety of international settings, the main focus being on US, UK, and mainland Europe.

GEOG 3839. Introduction to Dendrochronology. (; 3 cr. ; Student Option; Every Fall)
Historical development, operational techniques, biological background, and principles of tree ring analysis. Applications of tree-ring data to investigate environmental change and past cultures. prereq: [1403, [BIOL 1001 or BIOL 1009 or equiv]] or instr consent

GEOG 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student?s work is supervised and evaluated by a site coordinator or instructor.

GEOG 3900. Topics in Geography. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Special topics/regions covered by visiting professors in their research fields.

GEOG 3973. Geography of the Twin Cities. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Social/physical characteristics of Twin Cities. Their place in U.S. urban network.

GEOG 3985V. Honors Senior Project Seminar. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Completion of research/writing of senior project. prereq: Honors, instr consent

GEOG 3985W. Senior Project Seminar. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Complete the research/writing of senior project. prereq: [jr or sr], instr consent

GEOG 3992. Directed Reading. (1-8 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading. Prereq-instr consent, dept consent, college consent.

GEOG 3993. Directed Studies. (1-8 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Guided individual study. Prereq-instr consent, dept consent, college consent.

GEOG 3994. Directed Research. (1-8 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Individual guided research. Prereq instr consent, dept consent, college consent.

GEOG 3996. Senior Project Directed Research. (3-4 cr. [max 8 cr.] ; A-F only; Every Fall, Spring & Summer)
Individual guided research course taken in fulfillment of the senior project requirement. Prereq instr consent,dept consent,college consent.

GEOG 3997. Senior Project. (2 cr. [max 4 cr.] ; A-F only; Every Fall, Spring & Summer)
Senior Project add-on credit. Must be taken concurrently with required or elective course related to area of specialization. Prereq instr consent, dept consent, college consent.

GEOG 4001. Modes of Geographic Inquiry. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Examination of competing approaches to the study of geography. Environmental determinism; regional tradition; scientific revolution; behavioral geography; modeling and quantitative geography; radical geography; interpretive and qualitative approaches; feminist and postmodern geography; ecological thinking and complexity; geographic ethics.

GEOG 4002W. Environmental Thought and Practice. (WI; 3 cr. ; Student Option; Periodic Spring)
Changing conceptions of nature, culture, and environment in Western social/political thought. How our understanding of humans/nonhumans has been transformed by scientific and technological practices. Interdisciplinary, reading intensive. prereq: Jr or sr

GEOG 5361. Geography and Real Estate. (; 4 cr. ; Student Option; Every Spring)
Origins and evolution of land ownership in the United States.

GEOG 5374. The City in Film. (WI; 4 cr. ; Student Option; Every Spring)
Cinematic portrayal of changes in 20th-century cities worldwide. Social/cultural conflict, political/economic processes, changing gender relationships, rural versus urban areas, population/development issues (especially as they affect women/children). Meets concurrently with 3374. Additional weekly meeting discusses films, readings. Project on a topic selected in consultation with instructor. prereq: grad student or instr consent

GEOG 5385. Globalization and Development: Political Economy. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Nature/scope of modern world system (capitalism), its impact on regional development processes. Roles of state and of international financial institutions. prereq: Sr or grad or instr consent

GEOG 5393. Rural Landscapes and Environments. (; 4 cr. ; Student Option; Every Spring)
Analysis of three principal components of rural landscape (form of land surface, plant life that cloaks it, structures that people have placed upon it). Structures associated with agriculture, including mining, forestry, resort areas, and small towns.

GEOG 5401. Geography of Environmental Systems and Global Change. (; 3 cr. [max 4 cr.] ; Student Option; Periodic Fall)
Processes that create/change the spatial patterns of climate, vegetation, and soils. Potential of humans to alter climate, vegetation, and soil processes. Possible impacts of human-altered environmental conditions. prereq: grad student or instr consent

GEOG 5426. Climatic Variations. (; 3 cr. ; Student Option; Periodic Fall)
Theories of climatic fluctuations and change at decadal to centuries time scales; analysis of temporal and spatial fluctuations especially during the period of instrumental record. prereq: 1425 or 3401 or instr consent

GEOG 5431. Plant and Animal Geography. (; 3 cr. ; Student Option; Periodic Fall)
Introduction to biogeography. Focuses on patterns of plant/animal distributions at different scales over time/space. Evolutionary, ecological, and applied biogeography. Paleobiogeography, vegetation-environment relationships, vegetation dynamics/disturbance ecology, human impact on plants/animals, nature conservation. Discussions, group/individual projects, local field trips.

GEOG 5511. Principles of Cartography. (; 4 cr. ; Student Option; Every Spring)

Topics on data sources for mapping. History of thematic cartography (focused on 19th-century European activity). Multivariate classification/ symbolization. Models for cartographic generalization, spatial interpolation, and surface representation. Animated/multimedia cartography.

GEOG 5530. Cartography Internship. (; 2-7 cr. [max 10 cr.] ; S-N or Audit; Every Fall & Spring)
Provides intensive hands-on experience in contemporary map production and design, ranging from GIS applications to digital prepress. Strong computer skills essential. prereq: instr consent

GEOG 5531. Numerical Spatial Analysis. (; 4 cr. ; Student Option; Every Fall)
Applied/theoretical aspects of geographical quantitative methods for spatial analysis. Emphasizes analysis of geographical data for spatial problem solving in human/physical areas.

GEOG 5541. Principles of Geocomputing. (3 cr. ; A-F or Audit; Every Spring)
The availability of computing infrastructures such as high-performance and cloud computing, high-speed networks, and rich data has led to a new scientific paradigm using computational science. Geocomputation is the "application of a computational science paradigm to study a wide range of problems in geographical and earth systems (the geo) contexts" (Openshaw, 2014). This course will introduce students to geocomputation as well as related areas including big spatial data, and cyberinfrastructure. Students will engage in hands-on-exercises learning principles and best-practices in geocomputing. The ability to program is an essential skill for GIScientists. Learning to program takes time and a lost of practice, and in this course students will learn how to develop programs in the Python programming language to solve geospatial problems.

GEOG 5543. Advanced Geocomputing. (3 cr. ; Student Option; Every Fall)
The availability of computing infrastructures such as high-performance and cloud computing, highspeed networks, and rich data has led to a new scientific paradigm using computational approaches, termed computational science. Geocomputation is the "application of a computational science paradigm to study a wide range of problems in geographical and earth systems (the geo) contexts" (Openshaw, 2014). This course will delve into advanced topics in geocomputation as well as related areas ranging from geographic information and spatial big data to cyberinfrastructure and parallel computation. Students will engage in hands-on exercises learning principles and best practices in geocomputing while using cutting-edge computational infrastructures.

GEOG 5561. Principles of Geographic Information Science. (; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the study of geographic information systems (GIS) for geography and non-geography students. Topics include GIS application domains, data models and sources, analysis methods and output techniques. Lectures, reading, and hands-on experience with GIS software. prereq: grad

GEOG 5562. GIS Development Practicum. (3 cr. ; Student Option; Periodic Fall)
Algorithms/data structures for digital cartographic data, topological relationships, surface modeling, and interpolation. Map projections, geometric transformations, numerical generalization, raster/vector processing. Hands-on experience with software packages. prereq: GIS 5571 or instr consent

GEOG 5563. Advanced Geographic Information Science. (; 3 cr. ; Student Option; Every Fall & Spring)
Advanced study of geographic information systems (GIS). Topics include spatial data models, topology, data encoding, data quality, database management, spatial analysis tools and visualization techniques. Hands-on experience using an advanced vector GIS package. prereq: B or better in 3561 or 5561 or instr consent

GEOG 5564. Urban Geographic Information Science and Analysis. (; 3 cr. ; Student Option; Periodic Fall)
Core concepts in urban geographic information science including sources for urban geographical and attribute data (including census data), urban data structures (focusing on the TIGER data structure), urban spatial analyses (including location-allocation models), geodemographic analysis, network analysis, and the display of urban data. prereq: 3561 or 5561

GEOG 5588. Advanced Geovisualization. (; 3 cr. ; Student Option; Every Fall)
The generation and use of geographic information has become an integral part of our daily life, science, and technology. This has led to increasing interest in the design and development of interactive maps and dynamic geographic visualizations in 2D, 3D, and Web environments. The Advanced Geovisualization course intends to equip students with the knowledge and advanced technical skills needed to design and implement effective maps and create dynamic and interactive visualizations using geospatial data sets.

GEOG 5839. Introduction to Dendrochronology. (; 3 cr. ; Student Option; Every Fall)
Historical development, operational techniques, biological background, and principles of tree ring analysis. Applications of tree-ring data to investigate environmental change and past cultures. prereq: [1403, [BIOL 1001 or BIOL 1009 or equiv]] or instr consent

GEOG 5900. Topics in Geography. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Special topics and regions. Course offered by visiting professors in their research fields.

German (GER)

GER 1001. Beginning German. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.).

GER 1002. Beginning German. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Emphasizes proficiency. Topics include free-time activities, careers, and culture of German-speaking areas. prereq: 1001

GER 1003. Intermediate German. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Contextualized grammar/vocabulary. Authentic readings. Essay assignments. prereq: 1002 or Entrance Proficiency Test

GER 1004. Intermediate German. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Contextualized grammar/vocabulary. Authentic readings. Essay assignments. prereq: 1003 or completion of Entrance Proficiency Test at 1004 level

GER 1022. Beginning German Review. (; 5 cr. ; Student Option; Every Fall & Spring)
Intended for students with previous experience in German, primarily those who have studied German in high school or at community colleges, or who are transfer students. Intensive review of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis to prepare for German 1003. prereq: Placement above 1001

GER 1551. Sustainability in Germany: Recreation, Education, Innovation. (GP; 3 cr. ; Student Option; Every Spring)
How has Germany responded to the grand challenge of climate-change? In what ways are perspectives on climate change & sustainability reflected in everyday culture? This course is designed for students to seek answers to these questions by experiencing life in Germany first-hand. During the first part of the course, you will review concepts & vocabulary related to climate change & sustainability, learn about the stages of intercultural development, reflect on your own cultural identity, practice conversational speaking in German, & prepare to immerse yourself in a foreign country. In May, you will apply what you learned as you travel to Freiburg & Munich. There you will see innovative technologies developed to lower CO2 emissions & talk with students, teachers, & business owners to learn about green communities that promote sustainable living. Finally, you will reflect on your own intercultural development as well as how approaches in Germany to climate change differ or are similar to those in your own country. prereq: Ger 1003 or equivalent; may be concurrently enrolled in 1003

GER 1601. Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood. (AH; 3 cr. ; Student Option; Fall Odd Year)
German/American films by famous directors who left Europe in Nazi period. Analysis of films

by Fritz Lang, Max Ophuls, Robert Siodmak, Otto Preminger, Billy Wilder, Douglas Sirk, and others. Films as art works and as cultural products of particular social, political, and historical moments.

GER 3011W. Conversation and Composition. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Achieving proficiency in professional or academic German. Refinement of oral/ written expression. Review of important communicative modes of language. Wide range of topics to develop advanced level of proficiency. prereq: 1004

GER 3012W. Conversation and Composition. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
Prepares students for upper-level language and content courses in German. Continues the same focus and approach as 3011 with the addition of a larger reading component. prereq: 3011

GER 3014. German Media. (; 3 cr. ; Student Option; Every Spring)
Introduction to German language media. German language newspaper/magazine articles. The Internet. Radio/TV broadcasts. Structure/style of journalistic prose. prereq: 3011

GER 3021. Business German. (; 3 cr. ; Student Option; Periodic Fall & Spring)
German economy, business culture. Practice of language used in business. Reading/discussion of German business documents. Preparation of formal letters and reports. prereq: 3011 or equiv

GER 3104W. Reading and Analysis of German Literature. (LITR,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to literary analysis. Readings from drama, prose, and lyric poetry, from 18th century to present. prereq: 3011

GER 3421. 18th-Century German Literature. (; 3 cr. ; Student Option; Periodic Fall & Spring)
German literature, 1720-1810, Enlightenment/ Weimar classicism in historical/cultural context. Reading/discussion of literary/philosophical works, aesthetic criticism. prereq: 3011

GER 3431. 19th-Century Literature. (; 3 cr. ; Student Option; Periodic Fall)
Literary/cultural exploration of 19th-century German literature through an investigation of romanticism, realism, and naturalism. Reading/ discussion of literary/critical texts. prereq: 3011

GER 3441. 20th-/21st-Century Literature. (; 3 cr. ; Student Option; Periodic Fall)
German literature, from 1890 to present, in historical, political, social, and cultural context. prereq: 3011

GER 3490. Topics in German Literature. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Intensive exploration of specific authors, literary genres, or literary topics not covered in period courses.

GER 3501. Contemporary Germany. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Social, political, and cultural developments in Germany, from 1945 to present. prereq: 3011

GER 3510. Topics in German Studies. (; 3 cr. [max 9 cr.] ; Student Option; Every Spring)
One topic in depth dealing with culture or civilization of German-speaking countries. prereq: 3011

GER 3520. Topics in Austrian and Central European Culture. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Culture, politics, and economy in Austria and Central Europe. Comparative analysis of cultural/political developments. Topics vary. prereq: 3011

GER 3551. Sustainability in Germany: Recreation, Education, Innovation. (GP; 3 cr. ; Student Option; Every Spring)
How has Germany responded to the grand challenge of climate-change? In what ways are perspectives on climate change & sustainability reflected in everyday culture? This course is designed for students to seek answers to these questions by experiencing life in Germany first-hand. During the first part of the course, you will review concepts & vocabulary related to climate change & sustainability, learn about the stages of intercultural development, reflect on your own cultural identity, practice conversational speaking in German, & prepare to immerse yourself in a foreign country. In May, you will apply what you learned as you travel to Freiburg & Munich. There you will see innovative technologies developed to lower CO2 emissions & talk with students, teachers, & business owners to learn about green communities that promote sustainable living. Finally, you will reflect on your own intercultural development as well as how approaches in Germany to climate change differ or are similar to those in your own country. prereq: Ger 3011 or equivalent; may be concurrently enrolled in 3011

GER 3601. German Medieval Literature. (GP,LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Literary investigation of the greatest works of medieval German poetry. Readings in English. Majors will be required to write a paper with use of secondary sources in English and German. prereq: No knowledge of German required

GER 3604W. Introduction to German Cinema. (AH,WI,GP; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
An introduction to the study of German cinema, with a focus on the relation between German film and German history, literature, culture, and politics.

GER 3610. German Literature in Translation. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
In-depth study of authors or topics from various periods in German literature. prereq: No knowledge of German required; cr toward major or minor requires reading in German

GER 3631. Jewish Writers and Rebels in German, Austrian, and American Culture. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Literary/cultural modes of writing used by Jewish writers in Germany, Austria, and America to deal with problems of identity, anti-Semitism, and assimilation. Focus on 20th century. All readings (novels, poetry, stories) in English. prereq: No knowledge of German required; Extra work in German must be done in order to count this course toward a German minor or a German, Scandinavian, Dutch major.

GER 3633. The Holocaust: Memory, Narrative, History. (GP,HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
Seventy years after the end of the second world war, the Holocaust continues to play a formative role in public discourse about the past in Germany and Austria. As the event itself recedes into the past, our knowledge about the Holocaust has become increasingly shaped by literary and filmic representations of it. This course has several objectives: first, to deepen students' historical knowledge of the events and experiences of the Holocaust, and at the same time to introduce critical models for examining the relationship between personal experience, historical events, and forms of representation. This class will introduce students to the debates about the politics of memory and the artistic representation of the Holocaust, with special focus on public debates about the complex ways in which Holocaust memory surfaces in contemporary Germany and Austria, and by the accrual of layers of text and discourse about the Holocaust. Additional topics will include Holocaust testimony; Holocaust memoirs, and 2nd and 3rd generation Holocaust literature, the Historians' Debate of the 1980s.

GER 3641. German Folklore. (GP,LITR; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Literary and cultural investigation of the main folklore genres: charms, legends, folktales, and ballads; their composition, origin, and role in society with a strong emphasis on their international character. Readings in English. Majors required to write a paper with use of secondary sources in English and German. prereq: No knowledge of German required; cr for major or minor by arrangement with instructor

GER 3642. The Grimms' Fairy Tales, Then & Now. (; 3 cr. ; Student Option; Periodic Spring)
Exploration and cultural background of the Grimms' fairy tales and investigation of how various folktale types developed and became classical models for children and adults. The genre of the literary fairy tale in Germany, Europe, and North America. Comparisons of original literary versions with contemporary tales. All readings in English.

GER 3651. Thinking Environment: Green Culture, German Literature and Global Debates. (ENV,LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
How environmental thinking became social-political force through German literature/ culture, with comparisons to global or U.S. developments. Authors include Goethe, Christa Wolf, Enzensberger.

GER 3655. Cultures of Control and Surveillance in Germany and the US. (CIV,HIS; 3 cr. ; Student Option; Fall Odd Year)
Discourses and practices of social control and surveillance in comparative/historical perspective. Explores the central conceptual condition for modern ethics: the relationship between individual and society. Paintings, manuals, scholarly and philosophical essays, and literary texts including writings by Franz Kafka.

GER 3701. History of the German Language. (; 3 cr. ; Student Option; Periodic Fall)
Change in grammar and lexicon, 750 A.D. to present. prereq: 1004

GER 3702. Beginning Middle High German. (; 3 cr. ; Student Option; Periodic Fall)
Middle High German grammar. Selected literary texts. prereq: 1004

GER 3704. German Dialects. (; 3 cr. ; Student Option; Periodic Fall)
Contemporary regional dialects recorded on tape and written in texts. Synchronic and diachronic analysis. prereq: 1004

GER 3993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

GER 4001. Beginning German for Graduate Research. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.). Meets concurrently with 1001. prereq: Grad student

GER 4002. Beginning German for Graduate Research. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Emphasizes proficiency. Topics include free-time activities, careers, and culture of German-speaking areas. Meets concurrently with 1002. prereq: Grad student

GER 4003. Intermediate German for Graduate Research. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Contextualized grammar/vocabulary. Authentic readings. Essay assignments. Meets concurrently with 1003. prereq: Grad student

GER 4004. Intermediate German for Graduate Research. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Contextualized grammar/vocabulary. Authentic readings. Essay assignments. Meets concurrently with 1004. prereq: Grad student

GER 5011. Advanced Conversation and Composition. (; 3 cr. ; Student Option; Fall Odd Year)
Achieving high proficiency in writing/speaking professional/academic German. prereq: 3012, [grad student or adv undergrad]

GER 5410. Topics in German Literature. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topic may focus on a specific author, group of authors, genre, period, or subject matter. Topics specified in Class Schedule.

GER 5510. Topics in Contemporary German Culture. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
A topic of contemporary German culture explored in depth. prereq: 3011

GER 5610. German Literature in Translation. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Study in depth of authors or topics from various periods in German literature. Requires no knowledge of German. prereq: No knowledge of German required; cr toward major or minor requires reading in German

GER 5630. Topics in German Cinema. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Spring)
Topics chosen may focus on specific directors, genres, film production or reception, and/or other formal, theoretical, historical, or political issues. prereq: 3xxx film course or instr consent

GER 5651. Thinking Environment: Green Culture, German Literature and Global Debates. (ENV,LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
How environmental thinking became social-political force through German literature/culture, with comparisons to global or U.S. developments. Authors include Goethe, Christa Wolf, Enzensberger.

GER 5711. History of the German Language I. (; 3 cr. ; Student Option; Fall Even Year)
Historical development of German, from beginnings to 1450. prereq: 3011

GER 5712. History of the German Language II. (; 3 cr. ; Student Option; Spring Odd Year)
Historical development of German from 1450 to 2000. prereq: 5711

GER 5721. Introduction to Middle High German. (; 3 cr. ; Student Option; Fall Odd Year)
Introduction to Middle High German language and literature. Study of grammar through formal description of Middle High German phonology, morphology, and syntax. Normalized MHG texts read.

GER 5722. Middle High German: Advanced Readings. (; 3 cr. ; Student Option; Spring Even Year)
Acquisition of fluency in reading Middle High German normalized as well as non-normalized texts, both poetry and prose. prereq: 5721

GER 5734. Old Saxon. (; 3 cr. ; Student Option; Periodic Fall)
Study of the poetry of Old Saxon. Detailed investigation of Old Saxon in comparison with the other Old Germanic languages.

GER 5740. Topics in Germanic Medieval Studies. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Spring)
Topics specified in Class Schedule.

GER 5993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

German,Scandinavian, and Dutch (GSD)

GSD 3451V. Honors Major Project Seminar. (WI; 3 cr. ; A-F or Audit; Every Fall)
Major project under supervision of faculty member. Oral exam based on project. prereq: Honors student

GSD 3451W. Major Project Seminar. (WI; 3 cr. ; A-F or Audit; Every Fall)
Students prepare major project under supervision of faculty member.

GSD 3511W. Vikings, Knights, and Reformers: German and European Culture and Controversies to 1700. (WI; 3 cr. ; Student Option; Every Fall)
Survey of representative cultural-historical events in Europe (German-speaking countries, Scandinavian, the Netherlands) from early Germanic times to 1700.

GSD 3512W. Imagined Communities: German and European, Culture and Controversies, 1700 to Present. (WI; 3 cr. ; Student Option; Every Spring)
Survey of representative cultural-historical events in Europe (German-speaking countries, Scandinavian, the Netherlands) from 1700 to present.

GSD 5103. Teaching of Germanic Languages. (; 3 cr. ; Student Option; Every Fall)
Second language acquisition theory, methods, testing, and technology applicable to teaching of modern Germanic languages.

Gerontology (GERO)

GERO 5100. Topics in Gerontology. (; 0.5-4 cr. [max 10 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Timely topics related to the biology, sociology, and psychology of aging and applied aging services.

GERO 5102. Hot Topics in the Biology of Aging. (1 cr. ; S-N only; Fall Even Year)
The goals of the course include providing the students with an essential understanding of the contemporary issues in biogerontology, including analysis of ethics issues in the field. This course is open to graduate students and post-doctoral fellows involved in the NIA training grant Functional Proteomics of Aging. others may enroll with instr permission.

GERO 5103. Aging and Society. (2 cr. ; Student Option; Every Fall)
An examination of the broad range of topics and issues related to aging. Consideration of how the processes of aging affect individuals, groups, cohorts, and societies by drawing from research in sociology, psychology, gerontology, and health sciences. Comparisons are made of the processes of aging in US and other countries.

GERO 5111. Studying Aging and Chronic Illness. (; 2 cr. ; Student Option; Every Fall)
Methodological issues unique to studies of older populations. Focuses on measurement of epidemiological characteristics. Health conditions/disorders of older Americans. prereq: Introductory course in epidemiology or instr consent

GERO 5125. Gerontology Service Learning. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
At least 100 hours of service to seniors or organizations serving seniors required. Longitudinal one-on-one relationship with at least two seniors. Service activities may include: friendly visiting, escorting seniors to medical appointments, chore services, teaching health education to groups of seniors and staff, participating in social or recreational activities with seniors, assisting with immunization and screening programs, assisting seniors with selection of health plans, or providing volunteer home health aide or nursing assistant services or emergency non-medical response under the supervision of a nurse. Students may use up to 25 percent of their service time for project that benefits the campus as a whole. Reading, monthly class discussions, a term paper and weekly self-reflection

GERO 5191. Independent Study: Gerontology. (1-4 cr. [max 16 cr.] ; Student Option No Audit; Periodic Fall, Spring & Summer)
Independent study: gerontology. prereq: Approval of [adviser, DGS] for gerontology minor

Global Studies (GLOS)

GLOS 1015W. Globalization: Issues and Challenges. (GP,WI; 4 cr. ; Student Option; Every Fall & Spring)
Increased global interconnections over past 50 years. Impact of information revolution on human rights, economic inequality, ecological challenges, and decolonization. Comparative cases from Asia, Africa, Latin America, or Middle East.

GLOS 1112. Social Justice and Globalization. (GP; 3 cr. ; A-F only; Periodic Fall)
This course focuses on the relationship between two highly charged terms: globalization and social justice. We will explore questions such as: What is social justice, and how is it different from political justice or economic justice? When does the free flow of capital and commodities involved in globalizing processes endanger possibilities for social justice, and how might we check this danger? What about the mass migrations occurring now to Europe and elsewhere? To what extent are these the result of historic injustices, what new social injustices might they create, what new possibilities for social justice might they enable? How and when does the emergence of social media, network technologies and the like assist in the fight for human rights and equality, and thus enable social justice? And under what circumstances do these technologies empower phenomena like authoritarian populism, thus undermining social justice? This course will examine theoretical texts, literature, and empirical studies from the social sciences to investigate these questions.

GLOS 1600. Topics in Global Studies. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Spring)
Topics vary every semester. See Class Schedule.

GLOS 3105. Ways of Knowing in Global Studies. (3 cr. ; Student Option; Every Fall)
'Ways of Knowing' introduces Global Studies students to some of the major disciplines and methods used to make knowledge about the social world. The course first addresses fascinating philosophical questions, such as how is knowledge a social product? How are knowing and understanding different? How might we think of ignorance, too, as something constructed? We then turn from theory to practice, and to the question, how can we frame our questions, and enact our research in humble and ethically principled ways? Students will respond to this task by designing collaborative research projects. They will first identify and define a real world issue; they will review different disciplines' methods for defining and approaching the issue, and then they will jointly create a collaborative research design. The course will help Global Studies students understand the interdisciplinary nature of the Global Studies major, and it will help them begin to think about the goals, interests, and methods of their senior projects.

GLOS 3143. Living in the Global. (CIV; 3 cr. ; A-F only; Every Fall & Spring)
'Living in the Global' is an interdisciplinary humanities course that examines human life and culture in and under globalization and asks students to consider how their own experiences, identities, and practices are embedded in systems of power. Topics vary, but have included: cultural foundations of social justice, humans and the environment, place, labor and capital, and forced migration. These themes are explored through poetry, novels, feature films, documentaries, visual art, philosophy, and critical theory.

GLOS 3144. Knowledge, Power, and the Politics of Representation in Global Studies. (3 cr. [max 4 cr.] ; A-F only; Every Fall)
This course provides an introductory overview of core theories and concepts that prepare students for successful completion of the Global Studies curriculum. In this half of the Global Studies core course sequence, students will investigate questions pertaining to how representations of the modern world in popular media and academic writing contribute to, reaffirm, and often challenge relations of inequality and division tied to such categories as ethnicity, gender, and race. Drawing on a wide range of interdisciplinary sources including magazines, novels, films, and digital media, these questions may include: How do cultural representations of the Global South reinforce European imperial and colonial projects? What role do mass-market magazines and newspapers have in constructing difference and producing stereotypes that justify imperialist attitudes? How does the development of technologies, from railroads to the internet, affect collective experiences of time and space? How is 'fake news' and intentional misrepresentation a threat to democracy and to the ecological security of the Earth? Students will meet twice a week for lecture and attend a weekly recitation section, with assignments that include short writing exercises and/or weekly Canvas posts and a midterm and final examination. This course will show how the politics of representation and knowledge production relate to changing formations of power, while giving students the conceptual vocabulary and critical skills to prepare for subsequent Global Studies courses. Prereq: soph, jr, or sr

GLOS 3144H. Honors: Knowledge, Power, and the Politics of Representation in Global Studies. (; 3 cr. ; A-F only; Every Fall)
This course provides an introductory overview of core theories and concepts that prepare students for successful completion of the Global Studies curriculum. In this half of the Global Studies core course sequence, students will investigate questions pertaining to how representations of the modern world in popular media and academic writing contribute to, reaffirm, and often challenge relations of inequality and division tied to such categories as ethnicity, gender, and race. Drawing on a wide range of interdisciplinary sources including magazines, novels, films, and digital media, these questions may include: How do cultural representations of the Global South reinforce European imperial and colonial projects? What role do mass-market magazines and newspapers have in constructing difference and producing stereotypes that justify imperialist attitudes? How does the development of technologies, from railroads to the internet, affect collective experiences of time and space? How is 'fake news' and intentional misrepresentation a threat to democracy and to the ecological security of the Earth? Students will meet twice a week for lecture and attend a weekly recitation section with assignments that include short writing exercises and/or weekly Canvas posts and a midterm and final examination. This course will show how the politics of representation and knowledge production relate to changing formations of power, while giving students the conceptual vocabulary and critical skills to prepare for subsequent Global Studies courses. Prereq: Honors soph, jr, or sr

GLOS 3145. Global Modernity, the Nation-State, and Capitalism. (3 cr. ; A-F only; Every Spring)
This course provides an introductory overview of core theories and concepts that prepare students for successful completion of the Global Studies curriculum. In this half of the Global Studies core course sequence, students will investigate questions pertaining to the emergence of global modernity, capitalism, and the nation-state, with particular focus on theoretical concepts and institutional forms. Drawing on a wide range of interdisciplinary

sources including critical theory, philosophy, and texts from the social sciences, these questions may include: How did reason and culture emerge as key concepts in modernity, and how were they associated with transformations in time and space? How did the nation-state become a dominant political unit in the West, and how do postcolonial African states challenge its structure? What is the relationship between the Western liberal tradition, secularity, and violence? What are the histories and internal dynamics of the capitalist economy? Students will meet twice a week for lecture and attend a weekly recitation section, with assignments that include short writing exercises, a group project, and midterm and final examinations. This course will contextualize and trouble aspects of the global that are easily abstracted and taken for granted, while giving students the conceptual vocabulary and critical skills to prepare for subsequent Global Studies courses. Prereq: soph, jr, or sr Units: 3.00

GLOS 3145H. Honors: Global Modernity, the Nation-State, and Capitalism. (; 3 cr. ; A-F only; Every Spring)
This course provides an introductory overview of core theories and concepts that prepare students for successful completion of the Global Studies curriculum. In this half of the Global Studies core course sequence, students will investigate questions pertaining to the emergence of global modernity, capitalism, and the nation-state, with particular focus on theoretical concepts and institutional forms. Drawing on a wide range of interdisciplinary sources including critical theory, philosophy, and texts from the social sciences, these questions may include: How did reason and culture emerge as key concepts in modernity, and how were they associated with transformations in time and space? How did the nation-state become a dominant political unit in the West, and how do postcolonial African states challenge its structure? What is the relationship between the Western liberal tradition, secularity, and violence? What are the histories and internal dynamics of the capitalist economy? Students will meet twice a week for lecture and attend a weekly recitation section with assignments that include short writing exercises, a group project, and midterm and final examinations. This course will contextualize and trouble aspects of the global that are easily abstracted and taken for granted, while giving students the conceptual vocabulary and critical skills to prepare for subsequent Global Studies courses. Prereq: Honors soph, jr, or sr Units: 3.00

GLOS 3152W. Global Avant-Gardes: Theatre, Music, Modernity. (HIS,WI; 3 cr. ; Student Option; Every Spring)
What does it mean to be an avant-garde artist in the Global South? In postcolonial Africa and Asia, where arts were linked to national modernization projects, artists have played a key role in shaping citizens' identity, alongside schools and universities. While participating in modernizing projects, avant-garde artists maintained independence from state institutions and voiced criticism of dictators. This course examines avant-garde performance in several locations of the Global South, analyzing dramas of national history, modernist music, activist theater, cosmopolitan dance, transnational cultural circuits, and politically radical performances. Reading historical, social, and performance studies, we will develop methods for analyzing performances that aim to make transformative social interventions. These include textual analysis, ethnography, performance analysis, and tracking transnational cultural exchange. You will apply select methods in your final research paper, which centers on an avant gardist cultural phenomenon in the contemporary Global South.

GLOS 3215. Supercapitalism: Labor, Consumption & the Environment in the New Global Economy. (3 cr. ; A-F only; Every Spring)
Far-reaching transformations of the global economy over the last seventy years in the realms of labor, consumption and the environment. The movement away from regulated national economies to a more fully integrated global economy; changing patterns and organization of production, employment, consumption, and waste disposal; rise of supercapitalism: a new culture of market rule over society and nature.

GLOS 3219. History of Capitalism: Uneven Development Since 1500. (; 3 cr. ; Student Option; Fall Odd Year)
Causes of economic inequities in contemporary world. Long-term economic developments in cases taken from Africa, Asia, Europe, and North/South America. Various theoretical approaches to study of economic development. Introduction to key concepts.

GLOS 3231. Geography of the World Economy. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Geographical distribution of resources affecting development. Location of agriculture, industry, services. Agglomeration of economic activities, urbanization, regional growth. International trade. Changing global development inequalities. Impact on nations, regions, cities.

GLOS 3278. Tigers and Dragons: The Rise of the East Asian Economies, 1930-Present. (3 cr. ; Student Option; Spring Odd Year)
Rise of East Asian Economies, 1930-Present.

GLOS 3303. Environment and Development in the Third World. (ENV,SOCS; 3 cr. ; A-F or Audit; Every Spring)
Concepts for analyzing relations between capitalist development and environment in Third World. Historical geography of capitalist development. Case studies. Likelihood of social/environmental sustainability. prereq: Soph or jr or sr

GLOS 3305. Life for Sale: Global Debates on Environment, Science, and Society. (; 3 cr. ; A-F only; Spring Odd Year)
This class uses a social justice lens to explore the interrelations of scientific discoveries, unequal global economies, and commodification. We will look at practices, new technologies, and policies that are trenchant for the negative impacts they have on environments broadly defined, and for human and non-human populations. We will ask how these practices, technologies, and policies - and the social and economic contexts that produce them - variably impact the health, well being, and valuation of particular populations. In a series of interconnected themes, we will examine what factors produce food insecurity and for whom; where and why pollution of resources such as water happens; the history and current state of antibiotic resistance; climate change and its various effects; and how new technologies can be life-saving and life-denying according to the ways national and global policies determine who gains access and who does not. We will also look at the innovative ways grassroots movements tackle issues confronting particular groups, what constitutes positive social change and by whose definition, and potential ways forward. Prereq: soph or jr or sr

GLOS 3401W. International Human Rights Law. (GP,WI; 3 cr. ; A-F or Audit; Every Fall)
This course presents an introductory overview of the idea of human rights, its social and legal foundations and contemporary global issues. In the class, students will learn about the laws and procedures designed to protect the human rights of individuals and groups, with a special focus on the United Nations system. The course explores the conceptual underpinnings of human rights such as who is eligible to have rights, where those rights come from and who is responsible for guaranteeing them. Students will learn about how international laws are made and interpreted, and will consider the geo-political context which shapes human rights laws and procedures. Because of the evolving nature of the laws and issues in this field, students are encouraged to think analytically and ethically about how to address the many human rights challenges in the world today. The course will cover current human rights issues, including the right to health care, housing and other economic and social rights; and the right to life, freedom from torture and other civil and political rights. The course is writing intensive. The required paper for the class is a model complaint to the United Nations about a country and issue of the student's choosing. The class invites discussion and uses class exercises to engage students in the course material by shaping arguments for various legal fora.

GLOS 3407. Global Islamophobia. (3 cr. ; A-F only; Periodic Fall & Spring)
"We don't want Muslims in our country." "All Muslims should leave." "Muslims are terrorists." Throughout the world, anti-Muslim activists and politicians have been increasingly attacking Muslims and Islam. And, international organizations have reported human rights violations against Muslims worldwide. Recently, in the United States, there have been calls to ban Muslims, as well as register American Muslims. In France, Muslim women are prohibited to wear a headscarf in high school. And in Myanmar, a genocide against Muslim minorities is currently underway. While anti-Islamic discourses have a long history in

many societies worldwide (including Muslim-majority countries), the course seeks to explore the global rise of these discourses since September 11, 2001. The course examines the cultural, political, and historical origins of Islamophobic discourses that cast Muslims as "violent," "hateful," and "uncivilized." Class sessions will include some lecture but will be largely discussion based. Assignments will ask students to think and write critically about course concepts, debate and participate in simulation exercises, and reflect on personal thoughts and feelings about course content.

GLOS 3412. What is Equality?. (CIV; 3 cr. ; A-F only; Every Spring)
Course explores debates about equality. Equality has many dimensions--e.g.: economic, social, political. These forms cannot be reconciled. Liberal democracies affirm the principle of political equality but defend, even in principle, social and economic inequalities. Animal rights add another wrinkle: very few of those who fight for these rights would claim political equality for animals.

GLOS 3415W. Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization. (GP,WI; 3 cr. ; A-F or Audit; Periodic Fall)
This course will introduce students to some of the world's most powerful global institutions -- such as the World Bank (IBRD), the International Monetary Fund (IMF), the World Trade Organization (WTO), the United Nations, and affiliated agencies such as UNHCR (for refugee support). We will follow their efforts to promote a style of global development practices -- large-scale capital lending and global expertise building -- that has crystallized into a common understanding of how global north-south dynamics should progress. Cases pursued in class may include their lending and debt policies, dam building and energy projects, climate resilience and water loans, and the ways they mediate free trade agreements among competing countries. We will also hear from the multitude of voices, theories, and practices that offer alternative visions as to how peoples strive to produce a more just, socially equitable, and climate-safe world. We will use books, articles, films, in-class debates, case study exploration, small-group projects, and guest speakers to create a lively discussion-based classroom environment.

GLOS 3550V. Honors Course: Supervised Research Paper. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Supervised research paper. prereq: dept consent

GLOS 3602. In Other Worlds: Globalization and Culture. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
'Globalization' and 'Culture' are both terms that have been defined and understood in a variety of ways and the significance of which continues to be debated to the present, both inside and outside the academy. Globalization has been talked about both as an irresistible historical force, tending toward the creation of an increasingly interconnected, or, as is sometimes claimed, an increasingly homogeneous world, and as a set of processes, the outcome of which remains open-ended and uncertain, as likely to produce new kinds of differences as universal sameness. Culture meanwhile has been variously defined as that which distinguishes humans from other species (and which all humans therefore share) and as that which divides communities of humans from one another on the basis of different beliefs, customs, values etc. This course reflects on some of the possible meanings of both "Globalization" and "Culture" and asks what we can learn by considering them in relation to one another. How do the phenomena associated with globalization, such as increasing flows of people, capital, goods and information across increasing distances challenge our understandings of culture, including the idea that the world is composed of so many discrete and bounded "cultures"? At the same time, does culture and its associated expressive forms, including narrative fiction, poetry and film, furnish us with new possibilities for thinking about globalization? Does global interconnection produce a single, unified world, or multiple worlds? Are the movements of people, goods, ideas and information across distances associated with new developments caused by contemporary globalization, or have they been going on for centuries or even millennia? Might contemporary debates about climate change and environmental crisis compel us to consider these phenomena in new ways? The course addresses these questions as they have been discussed by scholars from a variety of disciplines and as they have been imagined by artists, poets, novelists and filmmakers. In doing so, it considers whether the distinctiveness of present day globalization is to be sought in part in the new forms of imagining and creative expression to which it has given rise.

GLOS 3609. Novels and Nations. (GP,LITR; 3 cr. ; Student Option; Periodic Fall)
How do emerging and postcolonial nations enlist fiction in their claims to sovereignty and autonomy? How do the novel's literary techniques and strategies perform a unique brand of political and social critique vis a vis nations and nationalisms? We will focus on novels from a variety of national contexts from the Global North and South to show how literary analysis can be a companion to the social sciences in illuminating the historical and social contexts of the nation-state. In addition, we will consider the function of literature in allowing stateless nations to imagine a shared connection. We will also focus on the inner workings of the novel in order to understand the conventions and mechanisms of the genre and how it interconnects with related forms such as cinema, performance, and the visual arts.

GLOS 3611. Stories, Bodies, Movements. (6 cr. ; A-F only; Periodic Fall & Spring)
For most of us, stories seem to simply 'happen.' We listen to stories, we tell stories, we are moved by stories, and we retell stories. However, every act of telling stories involves making decisions or moves, and each re-telling of a familiar story may either give birth to new meanings, nuances, and affects, or, it may erase their possibility. Thus, each storyteller can be seen as a translator of stories with a responsibility to retell stories ethically. It is precisely through these translational acts that all politics become politics of storytelling. In this course, we will consider the ways in which the politics of the global and the intimate derive their meanings, effects, and affects from the circulation, transaction, and re-tellings of stories within and across borders. We will ask how a praxis of ethical engagement with politics can be imagined as a praxis of receiving and retelling stories. By immersing ourselves in the process of remembering, telling, listening, trimming, interweaving, distilling, and performing stories, we will consider how ethical receiving and retelling of stories involves continuous revising, repositioning, and re-theorizing of such vexed and entangled terrains and terminologies as identity, community, rights, and justice, as well as the contingent meanings of knowledge, truth, and ethics. This course engages this terrain through a mode of active learning in which all the participants will read and reflect, listen and discuss, tell and retell, watch and play, move and perform collectively. By becoming aware of the ways in which our minds-bodies-souls are inserted in the receiving and translation of stories, we will grapple together with the ways in which our bodies--as our embodiments--help to relationally shape not only our own performances but also our responses to the performances of other living and moving bodies around us. We will learn from writings, film, songs, and plays by writers, artists, activists, and thinkers from a range of historical and contemporary locations and struggles. These include: Marie Lily Cerat, W. E. B. Du Bois, Suheir Hammad, Sterlin Harjo, Naeem Inayatullah, June Jordan, AnaLouise Keating, Kauanui, J. Kehaulani, Audre Lorde, Viet Thanh Nguyen, Middle East Research and Information Project, Alok Rai, Nina Simone, Leanne Betasamosake Simpson, Sangtin Writers, Standing Rock Collective, Eve Tuck, Patrick Wolfe, and K. Wayne Yang. Many of the 'Acts' in this course will be co-facilitated with local or international artists and writers. Grading Basis: A/F. The course requires all the participants to do sustained work and deep reflections, enjoy the process of imagining and creating with peers in a non-competitive environment. prereq: GLOS 3611 is for jr or sr only. People from all kinds of locations and journeys are invited to join us in this collective exploration. For further information, email: nagar@umn.edu.

GLOS 3613V. Honors: Stuffed and Starved: The Politics of Eating. (GP,WI,SOCS; 3 cr. ; A-F only; Periodic Fall & Spring)
The course takes a cross-cultural, historical, and transnational perspective to the study of the global food system. Themes explored include: different cultural and social meanings attached to food; social class and consumption; the global food economy; global food chains; work in the food sector; the alternative food

movement; food justice; environmental consequences of food production. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: - Sign up and prepare 3-4 discussion questions in advance of at least one class session. - Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). - Write two brief (1-page) reflection papers on current news or a two-page critique of a class reading - Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. - Interview a current Sociology/Global Studies graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor.

GLOS 3613W. Stuffed and Starved: The Politics of Eating. (GP,WI,SOCS; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course takes a cross-cultural, historical, and transnational perspective to the study of the global food system. Themes explored include: different cultural and social meanings attached to food; social class and consumption; the global food economy; global food chains; work in the food sector; the alternative food movement; food justice; environmental consequences of food production.

GLOS 3643. Islam and the West. (; 3 cr. ; Student Option;)
Cultural/intellectual trends that have defined fundamental differences between Islam and the West. Development of historical, philosophical, and intellectual mindset of both spheres. Factors that have contributed and continue to contribute to tension, anxiety, and hatred between the Muslim world and Europe and the United States.

GLOS 3645. Islamic World. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Foundation of Islam in Arabian Peninsula, its spread to Asia and Africa. Islamic civilization, influence on Europe before rise of capitalism. Rise of Capitalist Europe, colonization of Islamic World Islamic resurgence and post-colonial World. State-society and development. Culture/conflict in Moslem societies. Gender and Islam. Islamic World and the West. Moslems in North America and Europe. Case studies.

GLOS 3681. Gender and the Family in the Islamic World. (; 3 cr. ; A-F only; Periodic Spring)
This course explores the experiences of Muslim women and Muslim families from a historical and comparative perspective. Expanding the discussion on Muslim women's lives and experiences beyond the Middle East, by also centralizing on the experiences of Muslim women and families outside of this geographical area highlights the complex and diverse everyday experiences of Muslim women around the world. This wider lens exposes the limitations intrinsic in the stereotypical representation of Muslims in general and Muslim women in particular. We will explore the intricate web of gender and family power relations, and how these are contested and negotiated in these societies. Some of the themes the course explores include the debates on Muslim women and colonial representations, sexual politics, family, education and health, women and paid work, gender and human rights, and Islamic feminisms debates. prereq: At least soph; 1001 recommended

GLOS 3705. Migrations: People in Motion. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Students in this course will tackle debates related to migration from a variety of disciplinary perspectives and will compare and connect diverse migration trends around the world (Asia, Africa, Latin America, and North America). Students will critically engage with various paradigms on the geopolitical, racial, and gender power dynamics that anchor migration processes and outcomes. Why would the movement of individuals from some parts of the world (often from the least developed regions to the highly developed Western nations) create such strong and highly charged debates? How are cross border social and economic relations of individuals and households maintained and perpetuated? What are particular governments doing to either encourage or hinder these movements? How are current migrations different from earlier eras? Is this gendered, and if so, how and why? The objective of this course is to explore the above questions through academic and policy published literature. prereq: soph, jr, or sr

GLOS 3707. Disposable People?: Surplus Value, Surplus Humanity. (3 cr. ; A-F only; Fall Even, Spring Odd Year)
How do economic and social arrangements generate marginalized populations that are considered "surplus"? What is distinctive about "surplus populations" in the present global age? Have certain segments of humanity -- remaindered lives as it were -- become "disposable" within the existing order of things? In what ways does capitalism's drive for productivity and profit contribute to the rise of superfluous populations? How do states "manage" surplus populations? Who is considered "deserving" and who is not? What kinds of political and ethical questions does the existence "surplus humanity" force us to confront? Our course will address these urgent issues, and others beside by bringing together theoretical and empirical writings on the themes of work, precarity, automation, race, poverty, law, social movements, rights, and politics. Class sessions will be a combination of lectures, student-led discussions, debates, and analysis of audio-visual materials.

GLOS 3896. Global Studies Internship. (; 3 cr. ; A-F or Audit; Every Spring)
Hands-on experience at Twin Cities organizations working at the nexus of the local and the global. Work 100 hours in non-governmental organization. Substantive coursework in Global Studies is required. prereq: dept consent

GLOS 3900. Topics in Global Studies. (; 1-5 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
Topics vary each semester. See Class Schedule.

GLOS 3961. Culture and Society of India. (GP,SOCS; 3 cr. ; Student Option; Spring Even Year)
Contemporary society and culture in South Asia from an anthropological perspective with reference to nationalism; postcolonial identities; media and public culture; gender, kinship and politics; religion; ethnicity; and the Indian diaspora.

GLOS 3969. 20th Century India. (; 3 cr. ; A-F or Audit; Periodic Fall)
India under British hegemony in 1914 through Mahatma Gandhi/nationalist movement. World War II. British departure, creation of India/ Pakistan. Nehru. Indira, Rajiv Gandhi.

GLOS 3981W. Major Project Seminar. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students formulate research questions, select topic, and develop/produce 25-30 page paper. prereq: dept consent

GLOS 3993. Directed Study. (1-5 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

GLOS 4221. Globalize This! Understanding Globalization Through Sociology. (GP; 3 cr. ; A-F or Audit; Periodic Fall)
From the city streets of Bangalore to the high plateaus of La Paz to the trading floors of New York City, people from around the world are becoming increasingly interdependent, creating new and revitalizing old forms of power and opportunity, exploitation and politics, social organizing and social justice. This course offers an overview of the processes that are forcing and encouraging people?s lives to intertwine economically, politically, and culturally. prereq: Soc majors/minors must register A-F

GLOS 4311. Power, Justice & the Environment. (DSJ; 3 cr. ; A-F or Audit; Periodic Spring)
This course introduces students to the theoretical and historical foundations of environmental racism and environmental inequality more broadly. We will examine and interrogate both the social scientific evidence concerning these phenomena and the efforts by community residents, activists, workers, and governments to combat it. We will consider the social forces that create environmental inequalities so that we may understand their causes, consequences, and the possibilities for achieving environmental justice prereq: SOC 1001 recommended

GLOS 4315. Never Again! Memory & Politics after Genocide. (GP; 3 cr. ; A-F or Audit; Spring Odd Year)
Course focuses on the social repercussions and political consequences of large-scale political violence, such as genocide, war crimes and crimes against humanity. Students learn

how communities and states balance the demands for justice and memory with the need for peace and reconciliation and addresses cases from around the globe and different historical settings. prereq: SOC 1001 or 1011V recommended, A-F required for Majors/Minors.

GLOS 4319. "Jews will not replace us!" Global Antisemitism from its Origins to the Present. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course will explore the topic of antisemitism, its history and cultural logic, and the relation to other forms of exclusion tied to race, religion, and citizenship in modern times. Starting with the history of Jewish emancipation in Europe and the subsequent debates about the "Jewish Question," students will learn to identify the key features of political antisemitism and the ways that antisemitism has been explained by different social theories, including Marxism, Functionalism, and Critical theory. The course will examine the differences and continuities between older theological forms of anti-Judaism and modern antisemitism, the connections between antisemitism, nativism, and xenophobia in the US and globally, and engage with current debates regarding the correlation between anti-Zionism and antisemitism. We will also explore Jewish social, political, and ideological responses to antisemitism in Europe and the US, from the Holocaust to the present. Pre-reqs: sophomore or above.

GLOS 4344. Europe and its Margins. (; 3 cr. ; A-F only; Every Fall)
This course explores some of the forms of human imagining (literary, artistic, political, social scientific) engendered by the notoriously hard to define entity known as "Europe." It does so by focusing on regions and populations that have been thought of at various times as marking Europe's inner and outer cultural and/or geographical limits. Topics addressed include: the relationship between physical geography, cultural memory, and the formation (or subversion) of identity claims; the reconfigured political landscapes of post-socialism and European integration; immigration, refugee flows, and the rise of far-right ethno-nationalisms; and the effects of pandemics past and present. prereq: One course in [ANTH or GLOS]

GLOS 5152W. Global Avant-Gardes: Theatre, Music, Modernity. (HIS,WI; 3 cr. ; Student Option; Every Spring)
What does it mean to be an avant-garde artist in the Global South? In postcolonial Africa and Asia, where arts were linked to national modernization projects, artists have played a key role in shaping citizens' identity, alongside schools and universities. While participating in modernizing projects, avant-garde artists maintained independence from state institutions and voiced criticism of dictators. This course examines avant-garde performance in several locations of the Global South, analyzing dramas of national history, modernist music, activist theater, cosmopolitan dance, transnational cultural circuits, and politically radical performances. Reading historical, social, and performance studies, we will develop methods for analyzing performances that aim to make transformative social interventions. These include textual analysis, ethnography, performance analysis, and tracking transnational cultural exchange. You will apply select methods in your final research paper, which centers on an avant gardist cultural phenomenon in the contemporary Global South.

GLOS 5315. Never Again! Memory & Politics after Genocide. (GP; 3 cr. ; A-F or Audit; Spring Odd Year)
Course focuses on the social repercussions and political consequences of large-scale political violence, such as genocide, war crimes and crimes against humanity. Students learn how communities and states balance the demands for justice and memory with the need for peace and reconciliation and addresses cases from around the globe and different historical settings. prereq: SOC 1001 or 1011V recommended, A-F required for Majors/Minors.

GLOS 5403. Human Rights Advocacy. (; 3 cr. ; Student Option; Every Fall)
Theoretical basis of human rights movement. Organizations, strategies, tactics, programs. Advocacy: fact-finding, documentation, campaigns, trial observations. Forensic science. Human rights education, medical/psychological treatment. Research project or background for case study. prereq: Grad student

GLOS 5412. What is Equality?. (CIV; 3 cr. ; A-F only; Every Spring)
Course explores debates about equality. Equality has many dimensions--e.g.: economic, social, political. These forms cannot be reconciled. Liberal democracies affirm the principle of political equality but defend, even in principle, social and economic inequalities. Animal rights add another wrinkle: very few of those who fight for these rights would claim political equality for animals. prereq: prereq Grad or advanced undergrad with instr consent

GLOS 5602. Other Worlds: Globality and Culture. (; 3 cr. ; A-F or Audit; Periodic Fall)
Interconnectedness of world. Considering not one world, but many. Colonialism, consumption, diasporic conditions, global media, nationalism, supra-national governance. How globality is experienced/contested locally/specifically. prereq: [3101, 3144, grad student] or instr consent

GLOS 5611. Stories, Bodies, Movements. (6 cr. ; A-F only; Periodic Fall & Spring)
For most of us, stories seem to simply 'happen.' We listen to stories, we tell stories, we are moved by stories, and we retell stories. However, every act of telling stories involves making decisions or moves, and each re-telling of a familiar story may either give birth to new meanings, nuances, and affects, or, it may erase their possibility. Thus, each storyteller can be seen as a translator of stories with a responsibility to retell stories ethically. It is precisely through these translational acts that all politics become politics of storytelling. In this course, we will consider the ways in which the politics of the global and the intimate derive their meanings, effects, and affects from the circulation, transaction, and re-tellings of stories within and across borders. We will ask how a praxis of ethical engagement with politics can be imagined as a praxis of receiving and retelling stories. By immersing ourselves in the process of remembering, telling, listening, trimming, interweaving, distilling, and performing stories, we will consider how ethical receiving and retelling of stories involves continuous revising, repositioning, and re-theorizing of such vexed and entangled terrains and terminologies as identity, community, rights, and justice, as well as the contingent meanings of knowledge, truth, and ethics. This course engages this terrain through a mode of active learning in which all the participants will read and reflect, listen and discuss, tell and retell, watch and play, move and perform collectively. By becoming aware of the ways in which our minds-bodies-souls are inserted in the receiving and translation of stories, we will grapple together with the ways in which our bodies--as our embodiments--help to relationally shape not only our own performances but also our responses to the performances of other living and moving bodies around us. We will learn from writings, film, songs, and plays by writers, artists, activists, and thinkers from a range of historical and contemporary locations and struggles. These include: Marie Lily Cerat, W. E. B. Du Bois, Suheir Hammad, Sterlin Harjo, Naeem Inayatullah, June Jordan, AnaLouise Keating, Kauanui, J. Kehaulani, Audre Lorde, Viet Thanh Nguyen, Middle East Research and Information Project, Munshi Premchand, Alok Rai, Nina Simone, Leanne Betasamosake Simpson, Sangtin Writers, Standing Rock Collective, Eve Tuck, PatriGLOSck Wolfe, and K. Wayne Yang. Many of the 'Acts' in this course will be co-facilitated with local or international artists and writers. Grading Basis: A/F. The course requires all the participants to do sustained work and deep reflections, enjoy the process of imagining and creating with peers in a non-competitive environment. Prereq: For graduate students only, or with instructor consent. People from all kinds of locations and journeys are invited to join us in this collective exploration. For further information, email: nagar@umn.edu.

GLOS 5900. Topics in Global Studies. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Proseminar. Selected issues in global studies. Topics specified in Class Schedule.

GLOS 5993. Directed Studies. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study. Open to qualified students for one or more semesters.

GLOS 5994. Directed Research. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Qualified students work on a tutorial basis. Prereq instr consent, dept consent, college consent.

Graduate School (GRAD)

GRAD 5102. Preparation for University Teaching for Nonnative English Speakers. (2 cr. ; S-N or Audit; Every Fall & Spring)
Theory/practice of teaching in higher education in the United States. Emphasizes clear oral classroom communication and development of presentation skills. Students practice in a simulated instructional setting. prereq: English Language Proficiency Rating of 4; Contact instructor for permission number.

GRAD 5105. Practicum in University Teaching for Nonnative English Speakers. (1-2 cr. ; S-N or Audit; Every Fall & Spring)
Theory, advanced practice in teaching in higher education for nonnative speakers of English. Emphasizes interactive teaching strategies, awareness of cross-cultural classroom issues,oral classroom presentation skills, and legal/policy issues. prereq: 5102 or English Language Proficiency Rating of 2; Contact instructor for permission number.

Graduate Summer Research (GRD)

GRD 4999. Graduate Summer Research. (; 0 cr. ; No Grade Associated; Every Summer)
Graduate Summer Research

Grand Challenge Curriculum (GCC)

GCC 1903. Sustainable Development with Environmental Justice. (ENV; 3 cr. ; A-F only; Periodic Fall & Spring)
This freshman seminar will provide a clear knowledge of the grand challenge - sustainable development with environmental justice via the nexus approach. The specific objectives are (1) Discuss sustainable development with environmental justice and an interacting network. (2) Explain interrelationship among resource (especially water, food and energy ? WFE) utilization, sustainable development, and environmental justice and equity. (3) Compare the currently used ?solitary? approach and the recently developed nexus approach ? theoretical considerations, detection of (un)sustainability, natural and human-based pressures, governance practices and management issues. (4) Discuss application of the nexus approaches to achieve sustainable development with environmental justice. We hypothesize that a nexus approach promotes sustainable development with environmental justice via managing the interlinked resources, enhancing WFE security, increasing efficiency, reducing trade-offs, building synergies and improving governance across sectors.

GCC 1905. Art + Health Justice: Building Community Resiliance. (DSJ; 3 cr. ; A-F only; Periodic Fall & Spring)
By forming personal relationships with art and health, this interdisciplinary seminar asks students to learn while doing. As we actively reflect on the relationship between art, health, wholeness, justice, and resilience, students will explore the potential of inclusive and social art practices to generate meaningful forms of participatory culture that support individual and community health, wellbeing, and resilience. This course is built upon six foundational principles that recognize resilience building as an ongoing, dynamic process rather than a fixed outcome. Informed by these core, fundamental principles, the course is organized around the idea that learning and acting in the world is inherently iterative. Weekly classes will include visits with artists, activists, and scholars, visits to artist studios, in process art works, and sites of activism/resistance/imagination, as well as collaborative experiments in art.

GCC 1906. Rare Diseases: What it Takes to Be a Medical Orphan. (; 3 cr. ; A-F only; Periodic Fall & Spring)
What if you are born with a condition, which very few people know about and for which there are no cures? Or what if there is a cure, but it is very expensive and you have to take it throughout your life? How can you encourage pharmaceutical industry invest in such cures and have policy makers consider such conditions when they draft new regulations? Rare diseases are not rare. There are 7000 diseases, but in aggregate, these diseases affect 30 million (i.e. 1 in 10) Americans of all ages and additional millions of people globally. Most of these conditions are serious and life-altering and children account for more than 50% of those affected. However, only 5% of all rare diseases have FDA-approved treatments. Thus, there is a large unmet need in this area and one way to address this is to raise awareness about these conditions. In this highly interactive course comprising of weekly seminars and related readings on topics related to the understanding of rare diseases and the economics, regulatory and public policy aspects of development of drugs (orphan products) to treat these conditions in the US and across the globe. Students will learn from and network with researchers, healthcare professionals and business leaders and gain sufficient background to appreciate the scope of this multidisciplinary field. Students will work in teams with a patient advocacy organization to learn firsthand the challenges related to the diagnosis and treatment of a specific rare disease, barriers to research and development and deliver possible solutions to a specific challenge that they have identified.

GCC 1907. Environmental Grand Challenges: What Impact Will You Have?. (ENV; 3 cr. ; A-F only; Periodic Fall)
What does it mean to live a life that aligns with your values in a time of rapid global environmental transformations driven by climate change, mass extinction of plant and animal species, and the increasing pollution of our oceans, atmosphere, and soils? Is it possible to live sustainably, as individuals and societies, and what disciplines and approaches will we need to achieve this? Where does one start--at this University, in Minnesota, or around the world? We will explore these questions in these ways: With an overview of sustainability science, both what it says about about human and natural systems and how it comes to make these claims. By exploring the United Nations? Sustainable Development Goals. By exploring what we know about effective leadership within complex grand challenges, both social and environmental, and how this is enabled through a systems thinking approach. By examining the conflicts that exist within and between differing visions of sustainability through Minnesota-based case studies in climate change and ensuring safe drinking water. In addition to reading perspectives on these questions from a broad range of disciplines, we will interrogate abstract conceptions of sustainability through site visits and interviews with sustainability leaders. By the end of the course, we will have examined our own assumptions about what it means to live sustainability, learned about approaches to engaging in grand challenges, and explored innovative solutions to help sustain both a productive economy and our planet.

GCC 1908. Ways of Knowing Science. (DSJ; 3 cr. ; A-F only; Periodic Fall)
Every human society codifies its own unique approach, understanding and experience of the world around it into systems of knowledge. However, until very recently, scientific researchers at large Western universities have paid little attention to this knowledge, in part because much is dismissed as ?unscientific? -- implying inferiority to Western science. In this seminar, we will take a more culturally sensitive ?inside look? at diverse ways of knowing. Experience is often the best teacher. By direct experience and involvement with another culture, we come to better recognize their cultural worldview and its way of seeing and making sense of the world. In this way, learners will encounter different ways of knowing. Each week, experiential learning is supplemented through reading assignments that include published inquiry by indigenous and academic authors. This is a Grand Challenge Curriculum course.

GCC 3001. Can We Feed the World Without Destroying It?. (ENV; 3 cr. ; A-F only; Periodic Fall)
In this course, we will seek solutions to the challenge of achieving global food security and sustainability. Together, we will work to answer the question, "Can we feed the world without destroying it?" The course begins with lectures and skills workshops, followed by a series of interactive panels with guest experts. We will also prepare group projects that are focused on finding innovative solutions to this grand challenge. We will learn about the fundamental changes occurring in the global food system, the environment, and our civilization as a whole. We will explore how to approach inherently interdisciplinary problems, how to identify solutions that are truly sustainable in the long term, and how science and technology can inform decision-making. This is a Grand Challenge Curriculum course.

GCC 3003. Seeking Solutions to Global Health Issues. (GP; 3 cr. ; A-F only; Periodic Fall)
Often, the most progress on challenging issues such as health and equity is made when you apply an interdisciplinary perspective. The same is true for global health issues. Whether responding to emerging pandemics, food insecurity, maternal mortality, or civil society

collapse during conflict, solutions often lie at the intersection of animal, environmental, and human health. In this course, students will work in teams to examine the fundamental challenges to addressing complex global health problems in East Africa and East African refugee communities here in the Twin Cities. Together we will seek practical solutions that take culture, equity, and sustainability into account. In-field professionals and experts will be available to mentor each team, including professionals based in Uganda and Somalia. This exploration will help students propose realistic actions that could be taken to resolve these issues. This course will help students gain the understanding and skills necessary for beginning to develop solutions to global health issues. This is a Grand Challenge Curriculum course.

GCC 3004. The Fracking Boom: Promises and Challenges of the Hydrocarbon Renaissance. (ENV; 3 cr. ; A-F only; Periodic Fall)
This course will explore the energy revolution that has been ignited by recent technological advances (primarily hydro-fracturing or "fracking") and its many far-reaching consequences. Students will engage in understanding the economic, political, geological, environmental, and social aspects of this multi-faceted issue. After establishing the historical framework, we will discuss how the "fracking boom" has drastically altered this landscape. With a solid understanding of the role of hydrocarbons in the modern world, we will explore the promise and the perils of the fracking boom. While we will discuss all the major fracking areas, the Bakken Shale will receive special attention both because of its geographical proximity to Minnesota and because of the dramatic transformation it has spurred in North Dakota. We will explore economic and social repercussions of the Bakken boom from the interpersonal to the international, as well as issues related to environmental degradation and other potential hazards. This is a Grand Challenge Curriculum course. prereq: sophomore, junior, senior

GCC 3005. Innovation for the Public Good: Post-Pandemic Venture Design. (GP; 3 cr. ; A-F only; Periodic Fall & Spring)
Are you seeking ways to respond to the COVID-19 pandemic and its economic impact in meaningful ways? You will work in interdisciplinary teams in this interactive, online project-based course to develop entrepreneurial responses to COVID-19 pandemic related social, economic, and environmental problems while developing the tools, mindsets, and skills that can help you be a leader in addressing complex grand challenges. Projects will focus on the disruptions caused by the pandemic including food insecurity, unemployment, housing, transportation, small business, and workplace closures. Emerging central concerns at this time of equity issues, environmental, and other impacts will be emphasized in the course. Mentors and research consultants including community members and invited speakers will share their entrepreneurial, innovative work and insights. Teams will develop a well-designed venture plan and be prepared to compete for venture funding through Acara (acara.umn.edu) if you are interested in piloting your idea. You will use a discovery process with design thinking, ideation and input from field research in solving the challenge. Starting with up-front work to identify the ?right? problem to solve the product or service model will be designed around a community?s culture, needs and wants for scalability.

GCC 3007. Toward Conquest of Disease. (ENV; 3 cr. ; A-F only; Every Spring)
Since the rise of civilization, the large predators of humans have been subdued and the most dangerous predators remaining are those unseen--vastly smaller than our bodies. They are the microbial predators that cause disease. Infectious disease has devastated human populations and even caused global population declines. Subduing and managing disease is one of the grand challenges of our time. Through an enormous global effort, we have driven smallpox in humans and Rinderpest in livestock extinct from the natural world, and guinea worm is expected to follow. Other infectious diseases are in continual decline. In this course we will combine ecological thought and ecological models with historical and future perspectives to understand the fundamental dynamics of our miniscule predators, and relate this to similar miniscule predators of wild and domestic animals, to crops, and to other plants. This is a Grand Challenge Curriculum course. prereq: sophomore, junior, senior

GCC 3011. Pathways to Renewable Energy. (TS; 3 cr. ; A-F only; Periodic Spring)
This interdisciplinary course will examine obstacles to energy transitions at different scales. It will explore the role of energy in society, the physics of energy, how energy systems were created and how they function, and how the markets, policies, and regulatory frameworks for energy systems in the US developed. The course will closely examine the Realpolitik of energy and the technical, legal, regulatory, and policy underpinnings of renewable energy in the US and Minnesota. Students will learn the drivers that can lead global systems to change despite powerful constraints and how local and institutional action enables broader reform. Students will put their learning into action by developing proposals for addressing a particular challenge: What would it take to get the University of Minnesota to invest significantly in solar energy? This is a Grand Challenge Curriculum course. prereq: sophomore, junior, senior

GCC 3013. Making Sense of Climate Change - Science, Art, and Agency. (CIV; 3 cr. ; A-F only; Periodic Spring)
The overarching theme of the course is the role of artistic/humanistic ways of knowing as tools for making sense and meaning in the face of "grand challenges." Our culture tends to privilege science, and to isolate it from the "purposive" disciplines--arts and humanities--that help humanity ask and answer difficult questions about what should be done about our grand challenges. In this course, we will examine climate change science, with a particular focus on how climate change is expected to affect key ecological systems such as forests and farms and resources for vital biodiversity such as pollinators. We will study the work of artists who have responded to climate change science through their artistic practice to make sense and meaning of climate change. Finally, students create collaborative public art projects that will become part of local community festivals/events late in the semester.

GCC 3014. The Future of Work and Life in the 21st Century. (TS; 3 cr. ; A-F only; Periodic Fall)
This course seeks solutions to the technological, demographic, and economic forces that challenge taken-for-granted mindsets and existing policies around work, careers, and life. Students will consider positive and negative impacts of the forces that render the conventional education/work/retirement lockstep obsolete. What do these changes mean for men and women of different ages and backgrounds? What are alternative, sustainable ways of working and living in the 21st century? These questions reflect global challenges that touch the lives of people everywhere. Students will work in teams to begin to address these realities and formulate innovative solutions to better transform learning, working, caring, and community-building in the 21st century. This is a Grand Challenge Curriculum course.

GCC 3015. Bioinspired Approaches to Sustainability - Greening Technologies and Lives. (TS; 3 cr. ; A-F only; Periodic Spring)
How can we build a sustainable society? From designing cities and technologies that use green energy, to health care and agriculture that can sustain billions, the sustainability challenges that face us today are immense. The field of biomimicry seeks solutions to such problems by looking to the diverse ways in which organisms have adapted to varied and sometimes extreme environments. With over 1.3 million described species (and likely over 8 million in existence), chances are a species out there has evolved some solution to a particular problem. But how do we go about figuring out which species this might be? And which trait holds the adaptation in which we are interested? What might be some limitations associated with copying this adaptation--how might we build on it instead? This course teaches bio-inspired approaches to sustainability solutions. Throughout the course, students work in teams of complementary expertise to identify a sustainability problem, research a relevant biological system, and build a prototype bio-inspired solution to their focal problem. This is a Grand Challenge Curriculum course.

GCC 3016. Science and Society: Working Together to Avoid the Antibiotic Resistance Apocalypse. (TS; 3 cr. ; A-F only; Periodic Spring)
Before the discovery of antibiotics, even a simple thorn prick could lead to life threatening infection. Antibiotics are truly miracle drugs, making most bacterial infections relatively easy to cure. However, this landscape is

rapidly changing with the advent of microbes that are resistant to antibiotics. This course will provide an overview of how antibiotic use invoked antibiotic resistance, including in depth discussions of antibiotic resistant microorganisms and the impact of globalization on this exploding problem. Societal and ethical implications associated with antibiotic use and restriction in humans and animals will be discussed, along with global issues of antibiotic regulation and population surveillance.
The class will conclude with discussions of alternative therapeutic approaches that are essential to avoid "antibiotic apocalypse."
The course will include lectures by world-renowned experts in various topics, and students will leverage this knowledge with their own presentations on important topics related to issues of personal freedom versus societal needs. This is a Grand Challenge Curriculum course.

GCC 3017. World Food Problems: Agronomics, Economics and Hunger. (GP; 3 cr. ; A-F only; Periodic Fall)
This course provides a multi-disciplinary look at problems (and some of the possible solutions) affecting food production, distribution and requirements for the seven plus billion inhabitants of this planet. It is co-taught by an agronomist (Porter) and an economist (Runge) who together have worked on international food production and policy issues for the past 40 years. Historical context, the present situation and future scenarios related to the human population and food production are examined. Presentations and discussions cover sometimes conflicting views from multiple perspectives on population growth, use of technology, as well as the ethical and cultural values of people in various parts of the world. The global challenge perspective is reflected in attention to issues of poverty, inequality, gender, the legacy of colonialism, and racial and ethnic prejudice. Emphasis is placed on the need for governments, international assistance agencies, international research and extension centers, as well as the private sector to assist in solving the complex problems associated with malnutrition, undernutrition, obesity and sustainable food production. Through a better understanding of world food problems, this course enables students to reflect on the shared sense of responsibility by nations, the international community and ourselves to build and maintain a stronger sense of our roles as historical agents. Throughout the semester students are exposed to issues related to world food problems through the lenses of two instructors from different disciplinary backgrounds.
The core issues of malnutrition and food production are approached simultaneously from a production perspective as well as an economic and policy perspective throughout the semester. This is a Grand Challenge Curriculum course.

GCC 3018. What American Dream? Children of the Social Class Divide. (DSJ; 3 cr. ; A-F only; Periodic Fall)
As a result of the increasing and widening social class divide present in the early 21st century, American families and their children are facing more challenges than ever before. In this course, students will identify and confront the barriers to opportunities created by the divide and seek solutions that can be pursued with families, schools, and communities, and public policy to redress these inequities. Because of the complexity of this grand challenge, an interdisciplinary approach to intervention and policy is required. From course instructors' respective vantage points in prevention science, developmental and educational psychology, and family social science, and with the perspectives provided by faculty contributors from economics, law, and pediatrics, students engage with diverse modes of inquiry, epistemologies, and critical lenses by which possible solutions can be generated and implemented. This is a Grand Challenge Curriculum course.

GCC 3021. The Achievement Gap: Who is to Blame?. (DSJ; 3 cr. ; A-F only; Periodic Fall & Spring)
Students in GCC 3021 will start the semester with a review of what unequal schooling looks like in the United States. The course uses the history of Detroit to examine how underinvestment and discrimination positioned minoritized communities to receive inadequate education. School structures--including resources, climate and discipline, academic tracks, and community engagement--will be explored. Students will consider what it means to say that there are "achievement gaps" in our society's schools. Mainstream assumptions and meanings will be questioned and criticized, and alternatives, such as the notion of an "education debt," will be explored. This is a Grand Challenge Curriculum course.

GCC 3024. 11 Billion People: How long can the planet sustain humanity?. (ENV; 3 cr. ; A-F only; Periodic Fall)
As an evolved animal, humanity has always interacted with its environment, both through the ecology of its food web and through its modification of its geological surroundings. Yet the human ecological niche, and the breadth of its impact on the environment, has changed enormously through the biological and cultural evolution of our lineage, from our first two-legged ancestor; to the appearance of our own species, Homo sapiens; to the diversification of the hunter-gatherer adaptation at the end of the Pleistocene; to the invention of agriculture and animal husbandry in the Holocene; to the rise of craft specialization, social inequalities, and urbanism with the first state-level societies; and now the globalization of our food, diseases, and culture. Students in this course will explore how the cumulative effects of our biocultural evolution are putting the sustainability of our current population, now approaching 11 billion, at risk, mostly due to the unprecedented scale of humanity's impact on the Earth's ecosystems. This course investigates the origins, development, and predictions for humanity's ecological niche on the planet through a novel interdisciplinary fusion of the social and environmental sciences to give students i) the ability to see the environmental context of the present in an evolutionary light, as well as ii) the tools to evaluate possible remediation and sustainability approaches to control these problems at the local and global scale. The course provides an interdisciplinary immersion in these issues through combined instruction by anthropologists, archaeologists, historians, environmental scientists, ecologists, toxicologists, and sociologists. By focusing on multiple vectors of inquiry (i.e., society, economy, technology, environment) which can be considered at different scales (i.e., from past to present, local to global, individual to societal, temporary to long term), students' progress through the course will give them powerful tools to confront the Grand Challenges of our age, the Anthropocene. This is a Grand Challenge Curriculum course.

GCC 3025. Living the Good Life at the End of the World: Sustainability in the Anthropocene. (CIV; 3 cr. ; A-F only; Periodic Fall & Spring)
What does it mean to live "the good life" in a time of rapid climate changes, mass extinction of plant and animal species, and the increasing pollution of our oceans, atmosphere, and soils? Is it possible to live sustainably, as individuals and societies, in what scientists are calling the Anthropocene, or this new epoch of human influence over the planet? Will sustainability require that we sacrifice the gains humanity has made in our quality of life? Or can we find a way to create a good Anthropocene? This course will attempt to answer these questions in four ways: 1. By providing an overview of sustainability science, both what it says about about human and natural systems and how it comes to make these claims 2. By examining various conceptions of the good life, both individual and social, and how they intersect with the findings of sustainability science 3. By exploring the conflicts that exist within and between differing visions of sustainability and the good life through case studies in energy, water, and food 4. By pursuing collaborative research projects that will help students apply their knowledge and skills to current problems in sustainability studies We will read widely in the sciences, social sciences, and humanities to understand a range of historical and contemporary perspectives on these questions, and in doing so we will put abstract ethical principles into conversation with a diversity of specific cultures and environments. By the end of the course, students will have examined their own assumptions about personal and professional happiness, considered how these align with and diverge from societal visions and values, and explored innovative solutions to help sustain our productive economy and our planet. This is a Grand Challenge Curriculum course.

GCC 3026. Stepping Into the Gap: How can you support diversity in STEM?. (DSJ; 3 cr. ; A-F only; Periodic Fall)
The goal of this class is to empower students to alter the cognitive, social, and emotional factors that have led to the underrepresentation of many groups in STEM fields (Science, Technology, Engineering, and Mathematics). In addition to studying research on the psychology of learning and diversity, we will

survey literature about scientific communication and learn about the impact of disparities in educational opportunities. We will also engage in discussions about the persistent problems related to equity and access in STEM education. In October, November, and December, the class meets at a local middle school (easily accessible by public transportation). University students lead introductory science demos, stage a science fair so the middle school students have a chance to play judge, and then partner with the middle school students as they invent, execute and present their own science fair projects. During September, and on school holidays in October and November, the class will discuss theories and research that explains the crisis being experienced across America and in particular, in the Twin Cities. They will design evidence-based curriculum materials to address key issues and have hands-on experiences as peer mentor-teachers. Overall, this class will provide experiences that are likely to be transformative in relation to students' views of education, opportunity, and the power of their involvement. This class builds on a partnership between the University of Minnesota and a local middle school. The overarching goal is to support students from groups typically underrepresented in science as they participate in an advanced science learning opportunity: the science fair. Our engagement with the school science fair process should result in an experience that motivates future participation in STEM opportunities. This is a grand challenge curriculum course.

GCC 3027. Power Systems Journey: Making the Invisible Visible and Actionable. (TS; 3 cr. ; A-F only; Periodic Fall)
An energy revolution is underway, and needs to accelerate to support climate and economic goals. But the general citizenry does not understand our current energy systems, particularly the seemingly invisible phenomena of electricity, and its generation, distribution, and use. Technical knowledge is only half the solution, however. It is through human decisions and behaviors that technical solutions get applied and adopted, and the importance of communication and storytelling is being recognized for its relevance to making change. How can science literacy and behavior-motivating engagement and storytelling be combined to help make systemic change? This course explores the integration of science-based environmental education, with art-led, place-based exploration of landscapes and creative map-making to address this challenge. How do we make electricity visible, understandable, and interesting -- so we can engage citizens in energy conservation with basic literacy about the electric power system so that they can be informed voters, policy advocates, and consumers. In this class, you will take on this challenge, first learning about the electric power systems you use, their cultural and technical history, systems thinking, design thinking, and prior examples of communication and education efforts. With this foundation, you will then apply your learning to create a public education project delivered via online GIS Story maps that use a combination of data, art, and story to help others understand, and act on the power journey we are all on. All will share the common exploration of power systems through field trips, and contribute to a multi-faceted story of power, presented in a group map and individual GIS Story maps. No prior knowledge of GIS story maps or electricity issues is needed. The study of power systems can be a model for learning and communicating about other topics that explore the interaction of technology and society toward sustainability.

GCC 3028. Harnessing the power of research, community, clinic and policy to build a culture of health. (DSJ; 3 cr. ; A-F only; Periodic Fall)
Imagine a world where factors such as race, ethnicity, and socioeconomic status had no bearing on a person's health status, quality of life, or longevity--a world where everyone had an equal opportunity to live a long and healthy life. Unfortunately, this is not the case. Despite decades of focused public health efforts, health inequities remain; individuals from low income and diverse racial/ethnic backgrounds are far more likely to, (1) struggle with chronic health conditions, (2) report lower quality of life, and (3) have a lower life expectancy, than others. Bold and innovative solutions are needed to address this grand challenge. Integration is one such method that can potentially increase the success and sustainability of approaches to reduce health disparities and create a culture of health for all. Integration is an approach to solving complex public health problems that merges academic research, clinical practice, policy and community resources in new ways. This interactive course will challenge students to identify root causes of health, including access to food, housing, transportation and education. Students will also focus on health disparities and barriers to eliminating these existing, disparate, negative outcomes. Students will be introduced to the concept of integration science and practice; will learn about the importance of integration across research, practice, community, and policy domains to address health disparities; and will cultivate the communication skills needed to intentionally and successfully facilitate integration practice. Course instructors with unique vantage points as concerned scientists, health practitioners, and policy wonks will engage students in class discussions and activities, individual writing assignments and small-group work aimed at unveiling the reasons health disparities persist globally--challenging them to consider opportunities for integration to alleviate existing disparities. The semester will culminate in students working in groups to create their own integrated projects aimed at addressing a health disparity.

GCC 3029. What is Human Agency? Scientific & Philosophical Perspectives. (CIV; 3 cr. ; A-F only; Periodic Spring)
What makes Jane the U of M student different from Spot the dog? Besides the obvious, there are two really important differences. First, Jane knows a lot more than Spot about the world and wants to learn even more. Second, unlike Spot, Jane thinks about whether she is a good person and what she ought to do from a moral point of view. Human beings, then, are epistemic agents (knowledge seekers) and moral agents. How does this agency work? Is it primarily rational or does it involve our emotions? How does it develop? Can it be changed or improved, or is it fixed by our genes? Philosophers have been asking these questions for thousands of years. Recently, psychologists have been trying to answer them, too, using different methods. In this course, we'll see what progress can be made by bringing the methods of philosophy and science together. We'll start with moral agency. Historically, philosophers have thought we are profoundly different from other animals in our ability to understand and alter our own moral character. Some psychological research has cast this thought into doubt. What should we think? Philosophers and psychologists working on this problem have made real progress, so we'll use this example as our case study. The second half of the course will focus on epistemic (or knowledge-seeking) agency and, in particular, on the question of when it makes sense to believe what other people tell you. Here, interdisciplinary research is undeveloped so students will have the opportunity to be on the cutting edge. This course is taught by a philosopher and a psychologist. Readings will include philosophical and psychological research papers, and assignments will be designed to foster creative engagement across these fields. Weekly short writing assignments on the readings and active participation count for a portion of the grade. This is a Grand Challenge Curriculum course.

GCC 3031. The Global Climate Challenge: Creating an Empowered Movement for Change. (CIV; 3 cr. ; A-F only; Periodic Spring)
Students will explore ecological and human health consequences of climate change, the psychology of climate inaction, and will be invited to join us in the radical work of discovering not only their own leadership potential but that of others. We will unpack the old story of domination and hierarchy and invite the class to become part of a vibrant new story of human partnership that will not only help humanity deal with the physical threat of climate change but will help us create a world where we have the necessary skills and attitudes to engage the many other grand challenges facing us. Using a strategy of grassroots empowerment, the course will be organized to help us connect to the heart of what we really value; to understand the threat of climate change; to examine how we feel in the light of that threat; and to take powerful action together. Students will work in groups throughout the course to assess the global ecological threat posed by climate change, and they will be part of designing and executing an activity where they empower a community to take action. This is a Grand Challenge Curriculum course. prereq: soph, jr, sr

GCC 3032. Ecosystem Health: Leadership at the Intersection of Humans, Animals,

and the Environment. (ENV; 3 cr. ; A-F only; Every Fall)
What are the effects of climate change, disease emergence, food and water security, gender, conflict and poverty, and sustainability of ecosystem services on health, and how do we lead across boundaries for positive change? Unfortunately, these large-scale problems often become overwhelming, making single solution-based progress seem daunting and difficult to implement in policy. Fortunately, the emerging discipline of ecosystem health provides an approach to these problems grounded in trans-disciplinary science. Ecosystem health recognizes the interdependence of human, animal and environmental health, and merges theories and methods of ecological, health and political sciences. It poses that health threats can be prevented, monitored and controlled via a variety of approaches and technologies that guide management action as well as policy. Thus, balancing human and animal health with the management of our ecosystems. In this class, we will focus on the emerging discipline of ecosystem health, and how these theories, methods, and shared leadership approaches set the stage for solutions to grand challenges of health at the interface of humans, animals, and the environment. We will focus not only on the creation and evaluation of solutions but on their feasibility and implementation in the real world through policy and real-time decision making. This will be taught in the active learning style classroom, requiring pre-class readings to support didactic theory and case-based learning in class. Participation and both individual and group projects (written and oral presentation) will comprise most of the student evaluation. These projects may reflect innovative solutions, discoveries about unknowns, or development of methods useful for ecosystem health challenges. We envision that some of them will lead to peer-review publications, technical reports, or other forms of publication. This is a Grand Challenge Curriculum course.

GCC 3033. Advancing Health Equity: The Structural Determination at Home and Abroad. (DSJ; 3 cr. ; A-F only; Periodic Fall)
This course immerses students in the study of health equity, the social and structural determination of health, and the principles and practice of global health in a local setting. Through experiential study of the history, politics, and social and cultural narratives of communities in Minnesota, learners will bear witness to social forces that cause illness and those that support health. We will seek to understand accompaniment, or the practice of walking alongside and supporting communities, as well as the efforts of those who challenge power and work for social justice to change the structural determination of health. Demonstrating that health equity demands much more than healthcare, an interdisciplinary teaching team will draw on the disciplines of anthropology, sociology, economics, history, public policy, biomedicine, public health, and the arts to provide students with a foundation to understand the complex, interrelated forces that shape health in communities. The course will incorporate numerous ?classroom-less? experiences to facilitate conversation and relationship-building between students and community members and organizations working to promote health. The course will prioritize experiential pedagogy including community engagement; neighborhood walks and tours; group and individual reflection; theater, film, and other art forms; and prioritization of narrative to understand patient, community, and health professional experiences. Recognizing that advancing health equity requires community-building and social cohesion, the course will also utilize pedagogy that promotes critical self-reflection and builds classroom community. The course will integrate considerable reflection upon personal experiences with power, privilege, race, class, and gender; incorporates assignments that are action-oriented and focused on learning skills to lead change; and seeks to expand social cohesion in the communities of participants. These aspects of the course will provide rich opportunities to develop leadership, advocacy, and communication skills that are important for advancing health equity in partnership with communities. This is a Grand Challenge Curriculum course.

GCC 3035. Child Labor: Work, Education, and Human Rights in Global Historical Perspective. (GP; 3 cr. ; A-F only; Periodic Spring)
It seems obvious that we should oppose child labor. Or should we? This course challenges students to think critically about the many angles that need to be considered in deciding whether any particular type of children's work should be opposed or permitted. Drawing on contemporary and historical scholarship in the interdisciplinary arena of childhood and youth studies, this course takes on ethical as well as economic analyses; it reflects upon child development and legal perspectives; it examines cases ranging across the globe and across recent centuries. It may very well change the way you think about kids, forever. Historians find evidence of many different kinds of "childhoods," as well as changing notions of what work is appropriate for children. Coming from social-scientific and policy studies approaches, analysts and critics of contemporary global policies affecting child labor argue that the presumed superiority of ?modern Western childhood? needs rethinking. This course will also look at tensions between the presumption that schooling should be the only or primary occupation of childhood years and competing ideas child labor can be valuable and justifiable in many settings including, for example, American farm families. Looking at child labor from comparative global and historical perspectives will encourage and enable students to address some important questions: What types of ?work? have children done in various modern historical and contemporary settings? When and how is work arguably bad, or good, for children and their families? Under what conditions is schooling better than work, or vice-versa? Who gets to decide ?what?s best for children?? How should governments intervene, and how does intervention differ when children work for their family as opposed to other employers? What forms of regulatory measures or political activism have changed policies and practices regarding child labor in the past and present? This is a Grand Challenge Curriculum course.

GCC 3036. Seeking Connection through Decolonization: The Power of Indigenous Lands and Languages. (DSJ; 3 cr. ; A-F only; Periodic Fall & Summer)
Seeking Connection through Decolonization: The Power of Indigenous Languages and Place-Based Knowledge in the Face of Racism How has unequal distribution of power resulted in the decline in Indigenous language and the loss of societal connections to the land? How might we all, from different positionalities, revitalize our relationships to indigenous land and languages, in the face of racism and attempts to perpetuate colonization? In this course students will grapple with ideological roots of the ongoing decline in Indigenous language and place-based knowledge and how their decline has implications for all peoples. To understand the connections, students will participate in Indigenous language learning (Dakota and Ojibwe) as acts of cultural production. Discussion and reading will be supplemented with visits to local sites, for example, Medicine Gardens, Bell Museum, Gibbs Farm, and Bdote to directly interact with the land as pedagogy. Through the course themes, students will experience the interconnectedness of place-based knowledge, language and human identity, while also seeing the importance of understanding the lands on which one resides and the power of indigenous languages in re-imagining those relationships.

GCC 3037. Wealth & Inequality: Past, Present, Future. (DSJ; 3 cr. ; A-F only; Periodic Fall)
Fostering just and equitable communities is a grand challenge of our time. The global wealth gap between a handful of elites and the rest of the world?s population is increasingly unsustainable. Across the last generation, wealth inequality has spiked more sharply than ever before, and even the elite have come to recognize how concerning rising inequality has become with the World Economic Forum ranking ?wealth disparity? among the top five risks facing the planet right now. In this course, we will explore how our society came to produce such a severe concentration of wealth in the hands of a privileged few. Our focus is on wealth--the total amount of accumulated assets, broadly defined, in individuals, households, communities, and beyond--because it is precisely these starkly uneven stores of value, reproduced through inheritances across generations, that have accelerated contemporary inequality. We will work to understand the social structures, historical conjunctures, and global processes that perpetuate the inequitable distribution of wealth in our current moment. We will then envision social changes that promise to reduce wealth disparities and create a more just and equitable world. Throughout, we will explore how culture, identity, institutions, economic and political systems, and other social forces are entangled with and constitute the global

flows of money and assets. The purview of this course is global, as our attention will focus on the large global and structural processes and historical conjunctures that have long shaped global wealth inequality. It makes little sense to limit the inquiry to national borders given the unequal distribution of wealth was produced on a global scale. At the same time, we are mindful of the importance to act (and think) locally; as such, many of our examples and readings will focus on the United States. Given that wealth inequality in the U.S. is one of the worst in the world--the richest 1 percent have captured nearly 60 percent of all income gains from 1977 to 2000, and in 2010, the top 20 percent of households owned almost 90 percent of all privately held wealth in the US, while the net worth of the bottom 40 percent was negative-- it will serve as an important case study. Instead of addressing the key causes of inequality, the powerful across the world have seized on these conditions to mobilize an avalanche of discontent among sectors of the downwardly mobile in a way that often obscures the key reasons for their predicament and scapegoats those at the social margins. Given this context, it is imperative to better understand and analyze the histories, cultural assumptions, and hierarchies that have produced contemporary inequalities, locally, regionally, and globally. Developing this shared understanding--as we will do in this course--is critical for our potential to address this and the other interrelated grand challenges facing us. This is a Grand Challenge Curriculum course.

GCC 3038. Human Threats to Ocean Health. (ENV; 3 cr. ; A-F only; Periodic Spring)
Human Threats to Ocean Health This grand challenge course addresses the scope of the anthropogenic alterations in natural biogeochemical cycling (BGCC) of oceans that will help the students to develop strategies to intervene, advocate, and sustain planetary health for all of humanity. The following grand challenge questions will be addressed: (1) How does Ocean Biogeochemical Cycling (BGCC) of nutrients support global ecosystems and biodiversity? (2) What human (anthropogenic) activities disrupt ocean BGCC of nutrients, resulting in depletion of biodiversity, ecosystem health, ecosystem services, and environmental justice for humans? (3) What do humans have to do to protect the future of ocean health and all of humanity? Global recycling of nutrients and metals within the environment (geosphere, hydrosphere and atmosphere) and the biosphere are essential for maintaining biodiversity and ecosystem services on which all of humanity depends. Living organisms extract and transform nutrients for their metabolism, growth, and reproduction, ultimately releasing these nutrients (often in a transformed state) back to the inanimate sphere via biogeochemical cycling (BGCC) driven by energy transformations. In natural environments, BGCC maintains a dynamic equilibrium/homeostasis between abiotic and biotic spheres, a process essential for survival of life on Earth. However, the current human practices have caused massive changes in the BGCC of nutrients, thus disrupting the natural cycling and (i) threatening the biosphere?s nutrient availability and (ii) precipitating many of the current environmental problems such as climate change, nitrogen pollution, ocean acidification, acid rain, mercury deposition, etc. At the current scale of human development, these alterations to the BGCC in the oceans may seriously damage the environment and biodiversity, thus threatening the entire Planet?s future. Further, the adverse effects of the loss of ecosystem services may not be shared equally amongst society, whereby access to a healthy environment is increasingly distributed by power, class, and race. An understanding of these inequities and incorporation of environmental justice in eco-centric environmental advocacy will be essential for sustaining the health of our planet. Therefore, the students registering for this course will develop an understanding and the scope of the anthropogenic alterations in natural biogeochemical cycling of oceans that will help them develop strategies to intervene, advocate, and sustain planetary health for all of humanity. The specific aims are following: (1) Describe global and local mechanisms of natural BGCC on Earth and connection to the oceans; (2) Explain human impacts on BGCC, and relationships between abnormal BGCC and nutrient distribution in water, sediment, and air; (3) Determine impact of human-altered ocean nutrient cycling on society, including members disproportionately impacted by environmental issues and underrepresented in environmental movements; (4) Strategize sustainable strategies to mitigate the health and environmental problems associated with abnormal biogeochemical nutrient cycling, bringing environmental justice perspectives to the forefront; and (5) Convince students that positive actions made now can and will impact the future. This course will focus on multiple vectors of inquiry (i.e., chemistry, toxicology, environment science and justice, sustainability and biodiversity), and students' progress through the course will give them powerful tools to confront the Grand Challenges of our age, global change in biogeochemical cycles. This is a Grand Challenge Curriculum course.

GCC 3039. Creative Thinking: Strategies to Enhance Creative Capital in Society. (DSJ; 3 cr. ; A-F only; Periodic Fall)
Our world is facing multiple crises that demand increasingly innovative solutions. This is happening just when the creative capacity of our society as a whole has steadily decreased (The Creativity Crisis by Kyung Hee Kim). The challenge is to develop more creative capital. The drive to be curious supports our ability to generate ideas that are new and valuable while the drive to conform allows us to spread those ideas. Students will study not only creativity, but characteristics of conformity that maximize the spread ideas. Creative ?muscle? is strengthened when people are curious, ask questions, speculate more, and test theories rather than passively observe. Creative capital increases when groups of people have an easy and attractive way to do that. The goal of this course is not only to teach individuals creative techniques, but to teach how to spread creative thinking by making creativity as contagious as a weaponized virus, as addictive as an opioid drug, as habitual as your afternoon snack.

GCC 5001. Can We Feed the World Without Destroying It?. (ENV; 3 cr. ; A-F only; Periodic Fall)
In this course, we will seek solutions to the challenge of achieving global food security and sustainability. Together, we will work to answer the question, "Can we feed the world without destroying it?" The course begins with lectures and skills workshops, followed by a series of interactive panels with guest experts. We will also prepare group projects that are focused on finding innovative solutions to this grand challenge. We will learn about the fundamental changes occurring in the global food system, the environment, and our civilization as a whole. We will explore how to approach inherently interdisciplinary problems, how to identify solutions that are truly sustainable in the long term, and how science and technology can inform decision-making. This is a Grand Challenge Curriculum course.

GCC 5003. Seeking Solutions to Global Health Issues. (GP; 3 cr. ; A-F only; Periodic Fall)
Often, the most progress on challenging issues such as health and equity is made when you apply an interdisciplinary perspective. The same is true for global health issues. Whether responding to emerging pandemics, food insecurity, maternal mortality, or civil society collapse during conflict, solutions often lie at the intersection of animal, environmental, and human health. In this course, students will work in teams to examine the fundamental challenges to addressing complex global health problems in East Africa and East African refugee communities here in the Twin Cities. Together we will seek practical solutions that take culture, equity, and sustainability into account. In-field professionals and experts will be available to mentor each team, including professionals based in Uganda and Somalia. This exploration will help students propose realistic actions that could be taken to resolve these issues. This course will help students gain the understanding and skills necessary for beginning to develop solutions to global health issues. This is a Grand Challenge Curriculum course.

GCC 5005. Innovation for the Public Good: Post-Pandemic Venture Design. (GP; 3 cr. ; A-F only; Periodic Fall)
Are you seeking ways to respond to the COVID-19 pandemic and its economic impact in meaningful ways? You will work in interdisciplinary teams in this interactive, online project-based course to develop entrepreneurial responses to COVID-19 pandemic related social, economic, and environmental problems while developing the tools, mindsets, and skills that can help you be a leader in addressing complex grand challenges. Projects will focus on the disruptions caused by the pandemic including food insecurity, unemployment, housing, transportation, small business, and workplace closures. Emerging central concerns at this

time of equity issues, environmental, and other impacts will be emphasized in the course. Mentors and research consultants including community members and invited speakers will share their entrepreneurial, innovative work and insights. Teams will develop a well-designed venture plan and be prepared to compete for venture funding through Acara (acara.umn.edu) if you are interested in piloting your idea. You will use a discovery process with design thinking, ideation and input from field research in solving the challenge. Starting with up-front work to identify the ?right? problem to solve the product or service model will be designed around a community?s culture, needs and wants for scalability.

GCC 5007. Toward Conquest of Disease. (ENV; 3 cr. ; A-F only; Every Spring)
Since the rise of civilization, the large predators of humans have been subdued and the most dangerous predators remaining are those unseen--vastly smaller than our bodies. They are the microbial predators that cause disease. Infectious disease has devastated human populations and even caused global population declines. Subduing and managing disease is one of the grand challenges of our time. Through an enormous global effort, we have driven smallpox in humans and Rinderpest in livestock extinct from the natural world, and guinea worm is expected to follow. Other infectious diseases are in continual decline. In this course we will combine ecological thought and ecological models with historical and future perspectives to understand the fundamental dynamics of our miniscule predators, and relate this to similar miniscule predators of wild and domestic animals, to crops, and to other plants. This is a Grand Challenge Curriculum course. prereq: sophomore, junior, senior, graduate student

GCC 5008. Policy and Science of Global Environmental Change. (ENV; 3 cr. ; A-F only; Periodic Spring)
Through readings, lectures, discussions, written assignments, and presentations this course introduces the critical issues underpinning global change and its environmental and social implications. The course examines current literature in exploring evidence for human-induced global change and its potential effects on a wide range of biological processes and examines the social and economic drivers, social and economic consequences, and political processes at local, national, and international scales related to global change. This is a Grand Challenge Curriculum course.

GCC 5011. Pathways to Renewable Energy. (TS; 3 cr. ; A-F only; Periodic Spring)
This interdisciplinary course will examine obstacles to energy transitions at different scales. It will explore the role of energy in society, the physics of energy, how energy systems were created and how they function, and how the markets, policies, and regulatory frameworks for energy systems in the US developed. The course will closely examine the Realpolitik of energy and the technical, legal, regulatory, and policy underpinnings of renewable energy in the US and Minnesota. Students will learn the drivers that can lead global systems to change despite powerful constraints and how local and institutional action enables broader reform. Students will put their learning into action by developing proposals for addressing a particular challenge: What would it take to get the University of Minnesota to invest significantly in solar energy? This is a Grand Challenge Curriculum course.

GCC 5013. Making Sense of Climate Change - Science, Art, and Agency. (CIV; 3 cr. ; A-F only; Periodic Fall & Spring)
The overarching theme of the course is the role of artistic/humanistic ways of knowing as tools for making sense and meaning in the face of "grand challenges." Our culture tends to privilege science, and to isolate it from the "purposive" disciplines--arts and humanities--that help humanity ask and answer difficult questions about what should be done about our grand challenges. In this course, we will examine climate change science, with a particular focus on how climate change is expected to affect key ecological systems such as forests and farms and resources for vital biodiversity such as pollinators. We will study the work of artists who have responded to climate change science through their artistic practice to make sense and meaning of climate change. Finally, students create collaborative public art projects that will become part of local community festivals/events late in the semester. This is a Grand Challenge Curriculum course.

GCC 5014. The Future of Work and Life in the 21st Century. (TS; 3 cr. ; A-F only; Periodic Fall)
This course seeks solutions to the technological, demographic, and economic forces that challenge taken-for-granted mindsets and existing policies around work, careers, and life. Students will consider positive and negative impacts of the forces that render the conventional education/work/retirement lockstep obsolete. What do these changes mean for men and women of different ages and backgrounds? What are alternative, sustainable ways of working and living in the 21st century? These questions reflect global challenges that touch the lives of people everywhere. Students will work in teams to begin to address these realities and formulate innovative solutions to better transform learning, working, caring, and community-building in the 21st century. This is a Grand Challenge Curriculum course.

GCC 5015. Bioinspired Approaches to Sustainability: Greening Technologies and Lives. (TS; 3 cr. ; A-F only; Periodic Spring)
How can we build a sustainable society? From designing cities and technologies that use green energy, to health care and agriculture that can sustain billions, the sustainability challenges that face us today are immense. The field of biomimicry seeks solutions to such problems by looking to the diverse ways in which organisms have adapted to varied and sometimes extreme environments. With over 1.3 million described species (and likely over 8 million in existence), chances are a species out there has evolved some solution to a particular problem. But how do we go about figuring out which species this might be? And which trait holds the adaptation in which we are interested? What might be some limitations associated with copying this adaptation ? how might we build on it instead? This course teaches bioinspired approaches to sustainability solutions. Throughout the course, students work in teams of complementary expertise to identify a sustainability problem, research a relevant biological system, and build a prototype bio-inspired solution to their focal problem. This is a Grand Challenge Curriculum course.

GCC 5016. Science and Society: Working Together to Avoid the Antibiotic Resistance Apocalypse. (TS; 3 cr. ; A-F only; Periodic Spring)
Before the discovery of antibiotics, even a simple thorn prick could lead to life threatening infection. Antibiotics are truly miracle drugs, making most bacterial infections relatively easy to cure. However, this landscape is rapidly changing with the advent of microbes that are resistant to antibiotics. This course will provide an overview of how antibiotic use invoked antibiotic resistance, including in depth discussions of antibiotic resistant microorganisms and the impact of globalization on this exploding problem. Societal and ethical implications associated with antibiotic use and restriction in humans and animals will be discussed, along with global issues of antibiotic regulation and population surveillance.
The class will conclude with discussions of alternative therapeutic approaches that are essential to avoid "antibiotic apocalypse."
The course will include lectures by world-renowned experts in various topics, and students will leverage this knowledge with their own presentations on important topics related to issues of personal freedom versus societal needs. This is a Grand Challenge Curriculum course.

GCC 5017. World Food Problems: Agronomics, Economics and Hunger. (GP; 3 cr. ; A-F only; Periodic Fall)
This course provides a multi-disciplinary look at problems (and some of the possible solutions) affecting food production, distribution and requirements for the seven plus billion inhabitants of this planet. It is co-taught by an agronomist (Porter) and an economist (Runge) who together have worked on international food production and policy issues for the past 40 years. Historical context, the present situation and future scenarios related to the human population and food production are examined. Presentations and discussions cover sometimes conflicting views from multiple perspectives on population growth, use of technology, as well as the ethical and cultural values of people in various parts of the world. The global challenge perspective is reflected in attention to issues of poverty, inequality, gender, the legacy of colonialism, and racial and ethnic prejudice. Emphasis is placed on the need for governments, international assistance agencies, international research and extension centers, as well as

the private sector to assist in solving the complex problems associated with malnutrition, undernutrition, obesity and sustainable food production. Through a better understanding of world food problems, this course enables students to reflect on the shared sense of responsibility by nations, the international community and ourselves to build and maintain a stronger sense of our roles as historical agents. Throughout the semester students are exposed to issues related to world food problems through the lenses of two instructors from different disciplinary backgrounds. The core issues of malnutrition and food production are approached simultaneously from a production perspective as well as an economic and policy perspective throughout the semester.

GCC 5022. The Human Experience of Sensory Loss: Seeking Equitable and Effective Solutions. (TS; 3 cr. ; A-F only; Periodic Fall & Spring)
This course focuses on the visual, auditory, and other sensory pathways that convey information about the world to mind and brain. Millions of people worldwide experience deficits in sensory function that affect their quality of life. We will focus on the characteristics of healthy sensory functioning as well as how sensory disorders can affect personal identity, impede information processing, and alter brain structure and function. The course will address the demographics and risk factors for sensory disabilities, the implications of these disabilities for activities of daily living, the history of society's response to sensory disability, as well as societal, ethical, and personal attitudes toward sensory disabilities. The course will also explore translational and applied approaches for addressing sensory disabilities. Each class session will be co-taught by a pair of instructors, representing multiple scientific and social perspectives. A major goal of the course is to view sensory function and impairment from multiple perspectives cognitive science, neuroscience, medicine, engineering, society, consumers, ethics and social justice. The course will combine lectures, discussions, and student-led presentations of research papers. The course will include hands-on demonstrations of assistive technology and panel discussions with people with visual and hearing disabilities. During the semester, each student (or pairs of students) will develop a mini research proposal to address a real-world issue related to sensory impairment. The proposal must be translational in nature, and must include consultation with consumers of the proposed project. The final class session will be devoted to poster presentations of the mini proposals. The proposal report must include consideration of potentially opposing viewpoints about the proposed research. This course addresses two of our University's grand challenges: Advancing Health Through Tailored Solutions, and Just and Equitable Communities. This is a Grand Challenge Curriculum course.

GCC 5024. 11 Billion People: How long can the planet sustain humanity?. (ENV; 3 cr. ; A-F only; Every Fall)
As an evolved animal, humanity has always interacted with its environment, both through the ecology of its food web and through its modification of its geological surroundings. Yet the human ecological niche, and the breadth of its impact on the environment, has changed enormously through the biological and cultural evolution of our lineage, from our first two-legged ancestor; to the appearance of our own species, Homo sapiens; to the diversification of the hunter-gatherer adaptation at the end of the Pleistocene; to the invention of agriculture and animal husbandry in the Holocene; to the rise of craft specialization, social inequalities, and urbanism with the first state-level societies; and now the globalization of our food, diseases, and culture. Students in this course will explore how the cumulative effects of our biocultural evolution are putting the sustainability of our current population, now approaching 11 billion, at risk, mostly due to the unprecedented scale of humanity's impact on the Earth's ecosystems. This course investigates the origins, development, and predictions for humanity's ecological niche on the planet through a novel interdisciplinary fusion of the social and environmental sciences to give students i) the ability to see the environmental context of the present in an evolutionary light, as well as ii) the tools to evaluate possible remediation and sustainability approaches to control these problems at the local and global scale. The course provides an interdisciplinary immersion in these issues through combined instruction by anthropologists, archaeologists, historians, environmental scientists, ecologists, toxicologists, and sociologists. By focusing on multiple vectors of inquiry (i.e., society, economy, technology, environment) which can be considered at different scales (i.e., from past to present, local to global, individual to societal, temporary to long term), students' progress through the course will give them powerful tools to confront the Grand Challenges of our age, the Anthropocene. This is a Grand Challenge Curriculum course.

GCC 5027. Power Systems Journey: Making the Invisible Visible and Actionable. (TS; 3 cr. ; A-F only; Periodic Fall)
An energy revolution is underway, and needs to accelerate to support climate and economic goals. But the general citizenry does not understand our current energy systems, particularly the seemingly invisible phenomena of electricity, and its generation, distribution, and use. Technical knowledge is only half the solution, however. It is through human decisions and behaviors that technical solutions get applied and adopted, and the importance of communication and storytelling is being recognized for its relevance to making change. How can science literacy and behavior-motivating engagement and storytelling be combined to help make systemic change? This course explores the integration of science-based environmental education, with art-led, place-based exploration of landscapes and creative map-making to address this challenge. How do we make electricity visible, understandable, and interesting--so we can engage citizens in energy conservation with basic literacy about the electric power system so that they can be informed voters, policy advocates, and consumers. In this class, you will take on this challenge, first learning about the electric power systems you use, their cultural and technical history, systems thinking, design thinking, and prior examples of communication and education efforts. With this foundation, you will then apply your learning to create a public education project delivered via online GIS Story maps that use a combination of data, art, and story to help others understand, and act on the power journey we are all on. All will share the common exploration of power systems through field trips, and contribute to a multi-faceted story of power, presented in a group map and individual GIS Story maps. No prior knowledge of GIS story maps or electricity issues is needed. The study of power systems can be a model for learning and communicating about other topics that explore the interaction of technology and society toward sustainability. This is a Grand Challenge Curriculum course.

GCC 5028. Harnessing the Power of Research, Community, Clinic and Policy to Build a Culture of Health. (DSJ; 3 cr. ; A-F only; Periodic Fall)
Imagine a world where factors such as race, ethnicity, and socioeconomic status had no bearing on a person's health status, quality of life, or longevity--a world where everyone had an equal opportunity to live a long and healthy life. Unfortunately, this is not the case. Despite decades of focused public health efforts, health inequities remain; individuals from low income and diverse racial/ethnic backgrounds are far more likely to, (1) struggle with chronic health conditions, (2) report lower quality of life, and (3) have a lower life expectancy, than others. Bold and innovative solutions are needed to address this grand challenge. Integration is one such method that can potentially increase the success and sustainability of approaches to reduce health disparities and create a culture of health for all. Integration is an approach to solving complex public health problems that merges academic research, clinical practice, policy and community resources in new ways. This interactive course will challenge students to identify root causes of health, including access to food, housing, transportation and education. Students will also focus on health disparities and barriers to eliminating these existing, disparate, negative outcomes. Students will be introduced to the concept of integration science and practice; will learn about the importance of integration across research, practice, community, and policy domains to address health disparities; and will cultivate the communication skills needed to intentionally and successfully facilitate integration practice. Course instructors with unique vantage points as concerned scientists, health practitioners, and policy wonks will engage students in class discussions and activities, individual writing assignments and small-group work aimed at unveiling the reasons health disparities persist globally--challenging them to consider opportunities for integration to alleviate existing disparities. The semester will culminate in students working in groups to create their own

integrated projects aimed at addressing a health disparity.

GCC 5029. What is Human Agency? Scientific & Philosophical Perspectives. (CIV; 3 cr. ; A-F only; Every Fall)
What makes Jane the U of M student different from Spot the dog? Besides the obvious, there are two really important differences. First, Jane knows a lot more than Spot about the world and wants to learn even more. Second, unlike Spot, Jane thinks about whether she is a good person and what she ought to do from a moral point of view. Human beings, then, are epistemic agents (knowledge seekers) and moral agents. How does this agency work? Is it primarily rational or does it involve our emotions? How does it develop? Can it be changed or improved, or is it fixed by our genes? Philosophers have been asking these questions for thousands of years. Recently, psychologists have been trying to answer them, too, using different methods. In this course, we'll see what progress can be made by bringing the methods of philosophy and science together. We'll start with moral agency. Historically, philosophers have thought we are profoundly different from other animals in our ability to understand and alter our own moral character. Some psychological research has cast this thought into doubt. What should we think? Philosophers and psychologists working on this problem have made real progress, so we'll use this example as our case study. The second half of the course will focus on epistemic (or knowledge-seeking) agency and, in particular, on the question of when it makes sense to believe what other people tell you. Here, interdisciplinary research is undeveloped so students will have the opportunity to be on the cutting edge. This course is taught by a philosopher and a psychologist. Readings will include philosophical and psychological research papers, and assignments will be designed to foster creative engagement across these fields. Weekly short writing assignments on the readings and active participation count for a portion of the grade. This is a Grand Challenge Curriculum course.

GCC 5031. The Global Climate Challenge: Creating an Empowered Movement for Change. (CIV; 3 cr. ; A-F only; Periodic Spring)
Students will explore ecological and human health consequences of climate change, the psychology of climate inaction, and will be invited to join us in the radical work of discovering not only their own leadership potential but that of others. We will unpack the old story of domination and hierarchy and invite the class to become part of a vibrant new story of human partnership that will not only help humanity deal with the physical threat of climate change but will help us create a world where we have the necessary skills and attitudes to engage the many other grand challenges facing us. Using a strategy of grassroots empowerment, the course will be organized to help us connect to the heart of what we really value; to understand the threat of climate change; to examine how we feel in the light of that threat; and to take powerful action together. Students will work in groups throughout the course to assess the global ecological threat posed by climate change, and they will be part of designing and executing an activity where they empower a community to take action. This is a Grand Challenge Curriculum course. For: so, jr, sr, grad

GCC 5032. Ecosystem Health: Leadership at the intersection of humans, animals and the environment. (ENV; 3 cr. ; A-F only; Periodic Spring)
What are the effects of climate change, disease emergence, food and water security, gender, conflict and poverty, and sustainability of ecosystem services on health? Unfortunately, these large-scale problems often become overwhelming, making single solution-based progress seem daunting and difficult to implement in policy. Fortunately, the emerging discipline of ecosystem health provides an approach to these problems grounded in trans-disciplinary science. Ecosystem health recognizes the interdependence of human, animal and environmental health, and merges theories and methods of ecological, health and political sciences. It poses that health threats can be prevented, monitored and controlled via a variety of approaches and technologies that guide management action as well as policy. Thus, balancing human and animal health with management of our ecosystems. In this class, we will focus on the emerging discipline of ecosystem health, and how these theories, methods and computational technologies set the stage for solutions to grand challenges of health at the interface of humans, animals and the environment. We will focus not only on the creation and evaluation of solutions, but on their feasibility and implementation in the real world through policy and real time decision making. This will be taught in the active learning style classroom, requiring pre class readings to support didactic theory and case-based learning in class. Participation and both individual and group projects (written and oral presentation) will comprise most of the student evaluation. These projects may reflect innovative solutions, discoveries about unknowns, or development of methods useful for ecosystem health challenges. We envision that some of them will lead to peer-review publications, technical reports or other forms of publication. This is a Grand Challenge Curriculum course.

GCC 5034. How Can We Transition Minnesota to a Carbon-Free Economy?. (TS; 3 cr. ; A-F only; Periodic Fall & Spring)
The science is clear that we need to decarbonize the economy on a global scale as soon as possible to prevent catastrophic effects of climate change on human health and the environment. What does it mean to develop a prosperous carbon-neutral economy, while also improving people?s lives and the environment? How can this transition happen to make the benefits of societal wealth more equitable, and while protecting vulnerable populations? Will a transition to a carbon-free economy force us to change our quality of life? Together we will seek practical solutions to address these complex challenges. While there isn?t a single ?right? solution to grand challenges, progress can be made through an interdisciplinary perspective. This course will attempt to answer these questions through: A series of primers?lectures and discussions on key topics?to build your understanding of key topics for creating a carbon neutral economy Explore the conflicts that exist between solutions to rapidly reduce carbon emissions and create a clean energy future, through a deep case study of Minnesota ?Knowledge to Impact? workshops that introduce key skills and capacities for addressing any complex challenge Working in interdisciplinary teams to build upon lectures, discussions, and workshops to propose a well-developed solution to a problem related to the course?s grand challenge.

GCC 5035. Child Labor: Work, Education, and Human Rights in Global Historical Perspective. (GP; 3 cr. ; A-F only; Periodic Spring)
It seems obvious that we should oppose child labor. Or should we? This course challenges students to think critically about the many angles that need to be considered in deciding whether any particular type of children's work should be opposed or permitted. Drawing on contemporary and historical scholarship in the interdisciplinary arena of childhood and youth studies, this course takes on ethical as well as economic analyses; it reflects upon child development and legal perspectives; it examines cases ranging across the globe and across recent centuries. It may very well change the way you think about kids, forever. Historians find evidence of many different kinds of "childhoods," as well as changing notions of what work is appropriate for children. Coming from social-scientific and policy studies approaches, analysts and critics of contemporary global policies affecting child labor argue that the presumed superiority of "modern Western childhood" needs rethinking. This course will also look at tensions between the presumption that schooling should be the only or primary occupation of childhood years and competing ideas child labor can be valuable and justifiable in many settings including, for example, American farm families. Looking at child labor from comparative global and historical perspectives will encourage and enable students to address some important questions: What types of ?work? have children done in various modern historical and contemporary settings? When and how is work arguably bad, or good, for children and their families? Under what conditions is schooling better than work, or vice-versa? Who gets to decide what's best for children? How should governments intervene, and how does intervention differ when children work for their family as opposed to other employers? What forms of regulatory measures or political activism have changed policies and practices regarding child labor in the past and present? This is a Grand Challenge Curriculum course.

GCC 5036. Seeking Connection through Decolonization: The Power of Indigenous Lands and Languages. (DSJ; 3 cr. ; A-F only; Every Spring)

Seeking Connection through Decolonization: The Power of Indigenous Languages and Place-Based Knowledge in the Face of Racism How has unequal distribution of power resulted in the decline in Indigenous language and the loss of societal connections to the land? How might we all, from different positionalities, revitalize our relationships to indigenous land and languages, in the face of racism and attempts to perpetuate colonization? In this course students will grapple with ideological roots of the ongoing decline in Indigenous language and place-based knowledge and how their decline has implications for all peoples. To understand the connections, students will participate in Indigenous language learning (Dakota and Ojibwe) as acts of cultural production. Discussion and reading will be supplemented with visits to local sites, for example, Medicine Gardens, Bell Museum, Gibbs Farm, and Bdote to directly interact with the land as pedagogy. Through the course themes, students will experience the interconnectedness of place-based knowledge, language and human identity, while also seeing the importance of understanding the lands on which one resides and the power of indigenous languages in re-imagining those relationships. This is a Grand Challenge Curriculum (GCC) course.

GCC 5039. Creative Thinking. (DSJ; 3 cr. ; A-F only; Periodic Fall)
Our world is facing multiple crises that demand increasingly innovative solutions. This is happening just when the creative capacity of our society as a whole has steadily decreased (The Creativity Crisis by Kyung Hee Kim). The challenge is to develop more creative capital. The drive to be curious supports our ability to generate ideas that are new and valuable while the drive to conform allows us to spread those ideas. Students will study not only creativity, but characteristics of conformity that maximize the spread ideas. Creative ?muscle? is strengthened when people are curious, ask questions, speculate more, and test theories rather than passively observe. Creative capital increases when groups of people have an easy and attractive way to do that. The goal of this course is not only to teach individuals creative techniques, but to teach how to spread creative thinking by making creativity as contagious as a weaponized virus, as addictive as an opioid drug, as habitual as your afternoon snack.

GCC 5501. Knowledge to Impact: Creating Action with Your Grand Challenge Project Idea. (; 3 cr. ; A-F only; Periodic Spring)
Do you want to learn how to create viable solutions to address a complex social or environmental challenge? Are you interested in taking a course with other motivated students from across the university who care about being changemakers and being mentored by UMN faculty who will be supporting the students in the course? This experiential course will help you learn the skills to develop solutions that address a specific problem that you have worked on in a previous GCC course or a similar project-based class. By the end of the course, you will create a design and implementation plan for a solution that could take many forms, depending on student interest and the nature of the problem (business or nonprofit plans, policy and advocacy plans, media and awareness campaigns and activism plans are all possible). Resources (funding, training and mentors) will be available for students who wish to pursue their project beyond the classroom into implementation. Learn more at gcc.umn.edu. Students should enter the class with a problem statement identifying the challenge they aim to address, a target location or community, and a proposed solution or intervention that they wish to develop. Student teams working on a project are welcomed to enroll in this class together. Student solutions should address a problem that is about a broadly defined Grand Challenge; examples of applicable areas include water, immigration and refugees, energy, housing, achievement gap, public health, food and sustainable agriculture. While it is important to have a project or theme idea, the first part of the class is an examination of student ideas and possible modification of ideas. By the end of class, students will create a plausible design and implementation plan for a solution that addresses their self-created Grand Challenge problem statement. This solution or intervention could take many forms, depending on student interest and problem statement. Business or non-profit plans, policy and advocacy plans, media and awareness, activism plans are all possible. Determining the correct path(s) is one of the learning objectives for the course. This is a Grand Challenge Curriculum course. prereq: Prior completion of a GCC course

Graphic Design (GDES)

GDES 1311. Foundations: Drawing and Design in Two and Three Dimensions. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Design elements and principles in context of observational drawing. Integrative approach to two-dimensional design, three-dimensional design, and drawing. Broad conceptual framework for design exploration. Emphasizes perceptual aspects of visual forms.

GDES 1312. Foundations: Color and Design in Two and Three Dimensions. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Color theory, its application in two- and three-dimensional design. Emphasizes effective use of color by studying traditional color systems, perception, and interaction. Lectures, demonstrations, extensive studio work, and critiques.

GDES 1315. Foundations: The Graphic Studio. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Graphic design process of problem-solving. Visual communication of ideas and information. Use of design software to compose with words, images, and forms. prereq: Graphic design premajor design minor or instr consent

GDES 2196. Work Experience in Graphic Design. (; 1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Supervised work experience in business, industry, or government, related to student's area of study. Integrative paper or project. prereq: Plan submitted/approved by [adviser, internship supervisor], written approval of supervisor, instr consent

GDES 2342. Web Design. (; 3 cr. ; A-F only; Every Fall & Spring)
Graphic design elements/principles applied to website design. HTML, CSS. Working with interactive media and file formats.

GDES 2345. Typography. (; 4 cr. ; A-F only; Every Fall & Spring)
History of typographic forms, principles of composition, expressive potential of type. Design process from problem-solving through exploration, experimentation, selection, critique, and refinement. Readings, research, exercises, design production.

GDES 2361. Design Process: Photography. (3 cr. ; A-F only; Every Fall & Spring)
Photography for graphic designers: digital/film photographic developing/image manipulation, printing.

GDES 2399V. Design and its Discontents: Design, Society, Economy, and Culture. (WI; 3 cr. ; A-F only; Every Fall)
Secret history of modern, postmodern, and contemporary design. Principles and practices of designers who operate outside of main stream. Innovators, activists, cultural gadflies whose work challenges, provokes, and inspires. Context of economy, society, culture, and politics. Lecture, research, studio production. Written project proposals/ reflections/blogging.

GDES 2399W. Design and its Discontents: Design, Society, Economy, and Culture. (WI; 3 cr. ; A-F only; Every Fall)
Secret history of modern, postmodern, and contemporary design. Principles and practices of designers who operate outside of main stream. Innovators, activists, cultural gadflies whose work challenges, provokes, and inspires. Context of economy, society, culture, and politics. Lecture, research, studio production. Written project proposals/ reflections/blogging.

GDES 3170. Topics in Graphic Design. (; 1-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
In-depth investigation of specific topic.

GDES 3311. Illustration. (3 cr. ; A-F only; Every Spring)
Two aspects of illustration for contemporary graphic designer. Image making, by hand or digitally, for use in design projects. Design development. Mapping ideas/expressing thoughts visually. Not observational drawing course. prereq: GDes 1311 or ArtS 1101 or PDES 3702 or LA 1301 or Arch 3250 or Arch 2301 or instructor permission

GDES 3312. Color and Form in Surface Design. (; 4 cr. ; A-F only; Every Fall & Spring)
Use of color/form representation in two-dimensional surface applications. Historical use of color and of spatial representation in visual communication.

GDES 3351. Text and Image. (; 3 cr. ; A-F or Audit; Every Fall & Spring)

Composition of visual information using grid structures to integrate text/image. Informational/expressive aspects of graphic design, hierarchical relationships of visual elements. Methods of text layout that enhance communication. prereq: [2345 or DHA 2345], graphic design major, pass portfolio review

GDES 3352. Identity and Symbols. (; 3 cr. ; A-F only; Every Fall & Spring)
Representation of abstract ideas through symbols. Development of visual identity systems. prereq: pass portfolio review, graphic design major

GDES 3352H. Honors: Identity and Symbols. (; 3 cr. ; A-F only; Every Fall & Spring)
Representation of abstract ideas through symbols. Development of visual identity systems.

GDES 3353. Packaging and Display. (; 3 cr. ; A-F only; Every Fall & Spring)
Application of graphic design principles to three-dimensional projects. Principles of three-dimensional design/space applied to labeling, packaging, and display.

GDES 4131W. History of Graphic Design. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Historical analysis of visual communication. Technological, cultural, and aesthetic influences. How historical events are communicated/perceived through graphic presentation/imagery. prereq: Intro history or art history course

GDES 4160H. Honors Capstone Project. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Individualizes honors experience by connecting aspects of major program with special academic interests. prereq: Graphic design honors

GDES 4193. Directed Study in Graphic Design. (; 1-4 cr. [max 8 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Independent study in Graphic Design under tutorial guidance. prereq: Undergrad, instr consent

GDES 4196. Internship in Graphic Design. (; 1-3 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Supervised work experience relating activity in business, industry, or government to the student's area of study. Integrative paper or project may be required. prereq: Completion of at least one-half of professional sequence, plan submitted/approved in advance by [adviser, internship supervisor], written consent of faculty supervisor, instr consent

GDES 4312. Advanced Graphic Design Print Projects. (3 cr. ; A-F or Audit; Every Fall)
Advanced Graphic Design Print Projects offers an opportunity for students to propose, design, and produce printed graphic design products while expanding upon their experience in surface design and printing. Students will explore graphic design communication through group and individualized projects in a cohort, and under the supervision of graphic design faculty.

GDES 4330. Surface Fabric Design Workshop. (; 4 cr. [max 8 cr.] ; A-F or Audit; Every Spring)
Studio experience in the development and production of surface design. Screen printing, batik, resist dying, shibori, cyanotypes, and dye transfers are included.

GDES 4345. Advanced Typography. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Expressive visual communication of words. Fundamental legibility of "invisible art," overt expression through type. Students complete extended typographic project. prereq: [[2345 or DHA 2345], 3351, graphic design major] or design grad student or instr consent

GDES 4350. Advanced Design Material Topics. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Spring)
Letterpress, screen, and relief printing, or bookmaking. Defined but varying range of media expression. Graphic design communication through group/individualized projects in a cohort, under supervision of faculty.

GDES 4361V. Honors Thesis Studio and Writing. (WI; 3 cr. ; A-F only; Every Fall & Spring)
Research/design of comprehensive graphic design thesis project. prereq: [Graphic design major, 2399W or 2399V, 3352 or 3352H, 3353], honors student, or instr consent

GDES 4361W. Thesis Studio and Writing. (WI; 3 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Research/design of comprehensive graphic design thesis project. prereq: [Graphic design major, 2399W, 3352, 3353] or instr consent

GDES 4362. Senior Thesis and Exhibition. (3 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Design, production, and exhibition of comprehensive graphic design thesis project.

GDES 4362H. Senior Thesis and Exhibition. (; 3 cr. ; A-F only; Every Fall & Spring)
Design, production, and exhibition of comprehensive graphic design thesis project.

GDES 4363. Graphic Design Portfolio. (3 cr. ; S-N only; Every Fall & Spring)
Preparation of professional portfolio. Graphic design thesis exhibition. Professional issues.

GDES 4371. Data Visualization Studio. (3 cr. ; A-F only; Every Fall)
Visual articulation of data. Expansive research, meticulous gathering of data, analysis. Develop cohesive graphical narratives/build solid foundation in craft of presenting data. prereq: 2345, [Design minors required to take 2345], or graduate student, or instructor's consent

GDES 5193. Directed Study in Graphic Design. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in graphic design under tutorial guidance. prereq: Jr or sr or grad student

GDES 5311. Illustration. (3 cr. ; A-F only; Every Spring)
Image making by hand or digitally for use in design projects. Design development. Mapping out ideas/expressing thoughts visually. Not observational drawing course. prereq: 1311 or ArtS 1101 or PDes 3702 or LA 1301 or Arch 3250 or Arch 2301 or instr consent

GDES 5341. Interaction Design. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Design of interactive multimedia projects. Interactive presentations and electronic publishing. Software includes hypermedia, scripting, digital output. prereq: [[2334 or 2342], design minor] or graphic design major or grad student or instr consent

GDES 5342. Advanced Web Design. (3 cr. ; A-F or Audit; Every Spring)
Internet-based design. Static web pages, embedded media, cascading style sheets. Design and usability of interface between humans and technology. Evaluation of visual elements that control and organize dealings with computers to direct work. Students develop designs, do usability testing. prereq: [[2334 or 2342], design minor] or graphic design major or grad student or instr consent

GDES 5371. Data Visualization Studio. (3 cr. ; A-F only; Every Fall)
Visual articulation of data. Expansive research, meticulous gathering of data, analysis. Develop cohesive graphical narratives/build solid foundation in craft of presenting data.

GDES 5372. Data Visualization for Interactive Platforms. (3 cr. ; A-F only; Every Spring)
Skills/tools necessary to process large quantities of information/present them through interactive mediums. Create data visualizations for web utilizing Javascript libraries. Linear/non-linear data-driven narratives.

GDES 5383. Digital Illustration and Animation. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Advanced computer design. Integration of design knowledge with Macintosh computer applications. Students use software to create digital illustration and animations. Adobe Illustrator, After Effects, Flash. prereq: [[2334 or 2342], design minor], [graphic design major or [grad student, experience with computer illustration]]] or instr consent

GDES 5386. Fundamentals of Game Design. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Games of all kinds. Theoretical/practical aspects of making games. Investigation of design process. Rules, strategies, methodologies. Interactivity, choice, action, outcome, rules in game design. Social interaction, story telling, meaning/ideology, semiotics. Signs, cultural meaning. prereq: [[2334 or 2342], design minor] or [[4384 or DHA 4384 or 5341 or DHA 5341], [graphic design major or sr or grad student]] or instr consent

GDES 5388. Graphic Design Research. (; 3 cr. ; A-F or Audit; Periodic Spring)
Experience in Graphic Design research strategies and methods. Applied, theoretical, and human-centered aspects directed at project development. Design prototyping, testing, analysis. prereq: Graphic design major or grad student or instr consent

Greek (GRK)

GRK 1001. Beginning Classical Greek I. (5 cr. ; Student Option; Every Fall)
Introduction to grammar/vocabulary of classical Greek as written in Athens in 5th/4th centuries BCE. Forms/simple constructions. Some reading of simple, heavily adapted passages from ancient texts.

GRK 1002. Beginning Classical Greek II. (5 cr. ; Student Option; Every Spring)
Continuation of Greek 1001. More complex constructions, including participles, clauses, indirect discourse. Some reading of adapted passages from ancient texts. prereq: Grade of at least C- or S in 1001 or dept consent

GRK 3003. Intermediate Greek Prose. (4 cr. ; Student Option; Every Fall)
Introduction to Athenian prose authors of 5th/4th centuries BCE. Readings of continuous passages of unadapted Greek texts (history, speeches). Review of grammar/vocabulary. Some discussion of major themes/issues in Greek culture as illustrated by texts. prereq: Grade of at least C- or S in 1002 or 5001 or instr consent

GRK 3004. Intermediate Greek Poetry. (4 cr. ; Student Option; Every Spring)
Introduction to Greek epic poetry. Readings of selections from Homer's Iliad and Odyssey. Quantitative meter and poetic devices. Discussion of major themes and issues as developed in Homer's poetry. prereq: dept consent

GRK 3993. Directed Studies. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

GRK 4951W. Major Project. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Research project using documents/other sources from ancient world. Students select project in consultation with faculty member, who directs the research/writing. prereq: Greek major, three 3xxx Greek courses, instr consent, dept consent

GRK 5003. Intermediate Greek Prose for Graduate Student Research. (; 4 cr. ; Student Option; Every Fall)
Introduction to Athenian prose authors of 5th/4th centuries BCE. Readings of continuous passages of unadapted Greek texts (history, speeches). Review of grammar/vocabulary. Some discussion of major themes/issues in Greek culture as illustrated by texts. prereq: Grade of at least [C- or S] in [1002 or 5001] or [instr consent, grad student]

GRK 5004. Intermediate Greek Poetry for Graduate Student Research. (; 4 cr. ; Student Option; Every Spring)
Introduction to Greek epic poetry. Readings of selections from Homer's Iliad and Odyssey. Quantitative meter and poetic devices. Discussion of major themes and issues as developed in Homer's poetry. prereq: dept consent

GRK 5100. Advanced Reading. (; 3 cr. [max 18 cr.] ; Student Option; Every Fall & Spring)
Reading in Greek texts/authors. Texts/authors vary. prereq: [GRK 3004 or equiv], at least two yrs of college level Greek. Must contact Classical and Near Eastern Studies department for permission to register.

GRK 5200. Biblical Greek. (; 3 cr. [max 6 cr.] ; Student Option; Fall Even Year)
Readings from Gospels, epistles of Paul, related literature. Emphasizes proficiency in reading Greek New Testament. Selections vary. prereq: [GRK 3004 or equiv], at least two yrs of college level Greek. Must contact Classical and Near Eastern Studies department for permission to register.

GRK 5701. Prose Composition. (; 3 cr. ; Student Option; Spring Odd Year)
Moving step by step through Ancient Greek grammar, starting with simple sentences and progressing to complex ones. Course ends with students translating short passages of modern English prose into Greek. prereq: Grad student or instr consent

GRK 5705. Introduction to the Historical-Comparative Grammar of Greek and Latin. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Historical/comparative grammar of Greek and Latin from their Proto-Indo-European origins to classical norms.

GRK 5993. Directed Studies. (1-4 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq Grad student or instr consent.

GRK 5994. Directed Research. (1-12 cr. [max 18 cr.] ; Student Option; Every Fall & Spring)
Supervised original research on topic chosen by student. Prereq Grad student or instr consent.

GRK 5996. Directed Instruction. (1-12 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
Supervised teaching internship. Prereq Grad student or instr consent.

Health Informatics (HINF)

HINF 5115. Interprofessional Healthcare Informatics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Implications of informatics for practice, including nursing, public health, and healthcare in general. Electronic health record issues. Relates ethical, legislative and political issues informatics. Global and future informatics issues. prereq: Grad student or professional student or instr consent

HINF 5394. Directed Research. (; 1-6 cr. [max 18 cr.] ; Student Option No Audit; Periodic Fall, Spring & Summer)
Directed research arranged with faculty member.

HINF 5430. Foundations of Health Informatics I. (; 3 cr. ; A-F or Audit; Every Fall)
An introductory survey of health informatics, focusing on foundational concepts. Topics covered include: conceptualizations of data, information, and knowledge; current terminologies, coding, and classification systems for medical information; ethics, privacy, and security; systems analysis, process and data modeling; human-computer interaction and data visualization. Lectures, readings, and exercises highlight the intersections of these topics with electronic health record systems and other health information technology. prereq: Junior, senior, grad student, professional student, or instr consent

HINF 5431. Foundations of Health Informatics II. (; 3 cr. ; Student Option; Every Spring)
An introductory survey of health informatics, focusing on applications of informatics concepts and technologies. Topics covered include: health informatics research, literature, and evaluation; precision medicine; decision models; computerized decision support systems; data mining, natural language processing, social media, rule-based system, and other emerging technologies for supporting 'Big Data' applications; security for health care information handling. Lectures, readings, and exercises highlight the intersections of these topics with current information technology for clinical care and research. prereq: Junior, senior, grad student, professional student, or instr consent

HINF 5436. AHC Informatics Grand Rounds. (; 1 cr. [max 10 cr.] ; S-N or Audit; Every Fall)
Presentation/discussion of research problems, current literature/topics of interest in Health Informatics.

HINF 5440. Foundations of Translational Bioinformatics. (3 cr. ; A-F or Audit; Every Fall)
Translational bioinformatics deals with the assaying, computational analysis and knowledge-based interpretation of complex molecular data to better understand, prevent, diagnose and treat disease. This course emphasizes deep DNA sequencing methods that have persistent impact on research related to disease diagnosis and treatment. The course covers sequence analysis, applications to genome sequences, and sequence-function analysis, analysis of modern genomic data, sequence analysis for gene expression/functional genomics analysis, and gene mapping/applied population genetics. Prerequisites: MS, PhD, or MD/PhD student interested in translational bioinformatics

HINF 5450. Foundations of Precision Medicine Informatics. (3 cr. ; Student Option; Every Fall)
The course will provide an introduction into the fundamental concepts of Precision Medicine with a focus on informatics-focused applications for clinical data representation, acquisition, decision making and outcomes evaluation. The student will gain an appreciation of fundamental biomedical data representation and its application to genomic, clinical, and population problems.

HINF 5494. Topics in Health Informatics. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics in health informatics. prereq: Professional student or grad student or instr consent

HINF 5496. Internship in Health Informatics. (1-6 cr. [max 18 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Practical industrial experience not directly related to student's normal academic experience. prereq: HINF student or instr consent

HINF 5499. Capstone Project for the Masters of Health Informatics. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Final opportunity to apply newly acquired knowledge/skills to project involving practical problem in health informatics. Submit written project report in lieu of final examination. prereq: second semester MHI student or instr consent

HINF 5501. US Health Care System: Information Challenges in Clinical Care. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Health care system/its unique interaction between key health system stakeholders. Relationship between patients, providers, payers, regulatory bodies. Role of information management/challenges of information standardization/exchange. prereq: Junior or senior or professional student or grad student or instr consent

HINF 5502. Python Programming Essentials for the Health Sciences. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Computer programming essentials for health sciences/health care applications using Python 3. Intended for students with limited programming background, or students wishing to obtain proficiency in Python programming language. prereq: Junior or senior or grad student or professional student or instr consent

HINF 5510. Applied Health Care Databases: Database Principles and Data Evaluation. (; 3 cr. ; A-F or Audit; Every Fall)
Principles of database theory, modeling, design, and manipulation of databases will be introduced, taught with a healthcare applications emphasis. Students will gain experience using a relational database management system (RDBMS), and database manipulation will be explored using Structured Query Language (SQL) to compose and execute queries. Students will be able to critically evaluate database query methods and results, and understand their implications for health care. prereq: Junior or senior or grad student or professional student or instr consent

HINF 5520. Informatics Methods for Health Care Quality, Outcomes, and Patient Safety. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Application/operation of clinical information systems, electronic health records, decision support/application in health care system. Use of clinical information systems/association with health care delivery, payment, quality, outcomes. prereq: Junior or senior or grad student or professional student or instr consent

HINF 5530. Health Care Software Management. (; 2 cr. ; A-F or Audit; Every Spring)
Health care software and unique interaction between key stakeholders in health care software development and implementation. Systems analysis, software development, and software life cycle management for health care applications. prereq: HINF student or instr consent

HINF 5531. Health Data Analytics and Data Science. (; 3 cr. ; A-F or Audit; Every Spring)
Data science methods and techniques for the extraction, preparation, and use of health data in decision making. prereq: Junior or senior or professional student or grad student or instr consent

HINF 5540. Interprofessional Health Informatics. (; 2 cr. ; A-F only; Every Spring)
Informatics applications in various healthcare professions. Clinical specialties. Informatics tools to improve healthcare services/outcomes through lectures/presentations.

HINF 5610. Foundations of Biomedical Natural Language Processing. (3 cr. ; Student Option; Periodic Fall)
The course will provide a systematic introduction to basic knowledge and methods used in natural language processing (NLP) research. It will introduce biomedical NLP tasks and methods as well as their resources and applications in the biomedical domain. The course will also provide hands-on experience with existing NLP tools and systems. Students will gain basic knowledge and skills in handling with main biomedical NLP tasks. Prerequisites graduate student or instructor consent; Experience with at least one programming language (Python or Perl preferred) Recommended: basic understanding of data mining concepts, basic knowledge of computational linguistics

HINF 5620. Data Visualization for the Health Sciences. (3 cr. ; A-F or Audit; Periodic Spring)
An advanced health informatics course, focusing on theoretical and practical aspects of data and information visualization for health care and the health sciences. Topics include classic and novel visualization types; models of human visual perception and cognition; color, text and typography; maps and diagrams; evaluation and testing; and the aesthetic and cultural aspects of visualization. Examples emphasize health sciences applications for clinicians, patients, researchers, and analysts. Modern programming and commercial tools are discussed, including D3, ggplot2, and Tableau. Students will report on and discuss visualization methods, published studies and books, culminating in a final visualization project of the student's choosing.

HINF 5630. Clinical Data Mining. (3 cr. ; Student Option No Audit; Every Fall)
This is a hands-on introductory data mining course specifically focusing on health care applications. Analogously to the relationship between biostatistics and statistics, the data and computational challenges, the experiment design and the model performance requirements towards data mining in the clinical domain differ from those in general applications. This course aims to teach the students the most common data mining techniques and elaborate on the differences between general and clinical data mining. Specifically, the course will focus on (i) clinical data challenges and preprocessing; (ii) survey of the most common techniques in the clinical domain; (iii) clinical application touching up on experimental design and collaborations with physicians. The class will meet twice a week, one day dedicated to lectures and one day to a hands-on lab component, where students are expected to apply the techniques to health-related data. Some of the models will be evaluated with the involvement of a physician collaborator. Prerequisites: Basic linear algebra (matrix notation), basic optimization (gradient descent) Graduate level introductory statistics (e.g. STAT 5101-5102) or equivalent or instructor consent

HINF 5640. Advanced Translational Bioinformatics Methods. (3 cr. ; A-F or Audit; Every Fall)
This course is designed to introduce the high throughput platforms to students who are interested in the genomics research and genomics data analysis in the basic and clinical medical science field. The course covers history of the genomics platforms, its revolution and the specifics of the data generated by all existing different platforms. The course will also introduce all existing sequencing platforms and applications to biological science, as well the current trends in this field.

HINF 5650. Integrative Genomics and Computational Methods. (3 cr. ; A-F or Audit; Every Spring)
Genome-scale high throughput data sets are a central feature of modern biological research and translational clinical study. Experimental, computational biologists and clinical researchers who want to get the most from their data sets need to have a firm grasp and understanding of genomic data structure characteristics, analytical methodology and the intrinsic connection to integrate. This course is designed to build competence in quantitative methods for the analysis of high-throughput genomic data and data integration.

Health Services Management (HSM)

HSM 3040. Dying and Death in Contemporary Society: Implications for Intervention. (; 2 cr. ; Student Option; Every Fall & Spring)
This course provides basic background information on concepts, attitudes, ethics, and lifestyle management related to dying, death, grief, and bereavement. The emphasis is on preparing teachers, community health professionals, and other helping professionals for educational activities in this area. Prerequisite: sophomore

HSM 3051. Career and Internship Skills in Health Services Management. (2 cr. ; A-F or Audit; Every Fall & Spring)
This course is a requirement in the Bachelor of Applied Science major in Health Services Management. It can also be an elective for HSM minor and certificate students, with adviser permission. Its overall goal is to enable

students to apply concepts and skills gained in the Health Services Management program and contribute their knowledge of best practices to make a positive impact on the health services management workplace and industry. To successfully complete this class, students will create a career interest statement, resume, cover letter, and LinkedIn profile.They will also apply to at least one health services-related internship or work position, participate in networking opportunities, and create an action plan to successfully obtain an HSM internship and enroll in HSM 4596. Prerequisites: HSM major or premajor; WRIT 1301 or 1401 or equivalent; HSM 3521; HSM 4561.

HSM 3350. Special Topics in Health Services Management. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Timely issues and themes in health services management.

HSM 3521. Health Care Delivery Systems. (; 3 cr. ; A-F or Audit; Every Fall)
Health care (HC) delivery systems, health economics, third-party/public reimbursement, current trends in HC organizations/ management/administration. Regulations, standards, quality assurance, accreditation, current ethical issues. Implications for HC providers/professionals, patients/families, communities, international health. prereq: 30 cr

HSM 4041. Leadership in Health Services Management. (3 cr. ; A-F or Audit; Every Fall & Spring)
Learning about health care leadership will occur in three ways: exploration of foundational leadership theory with strategies, values, characteristics, and styles (the context); analysis of personal perspectives and beliefs about leadership (interpretation of the context); and examination of evolving health care industry trends. The course will assist students in understanding the most serious challenges facing the health care services market, presenting ways to address these challenges through emerging best practices and tapping existing relevant theories of leadership in health care. Each student will learn about their personal leadership style, and emphasis will be placed on self-awareness, critical thinking skills, culture development, and management of conflict. Case studies will be used to explore up-to-date examples concerning the external environment leaders face as they attempt to deal with what seems like daily change in their redesigned health care organizations. It is a hybrid course with live lectures, group projects, and leadership simulation.

HSM 4043. Project and Program Management in Health Services Management. (3 cr. ; A-F or Audit; Every Fall)
This is a hands-on course aimed at providing a practical, holistic perspective on the complexities of evidence-based project and program management within the health care organization. It describes the nature of health care projects, characteristics of project teams, and relevant trends in health care. You will become familiar with multiple project management tools, including Microsoft Project, as well as the necessary leadership, facilitation, and team skills. You will be exposed to case studies, examples, discussions, and readings on the disciplines and tools that professional health care project managers use. Upon completion of this course, you will have experienced the activities required to initiate, plan, execute, monitor, control, and close a successful health care project. Prerequisites: None

HSM 4065. Information Privacy and Security in Health Services Management. (TS; 3 cr. ; A-F or Audit; Every Fall & Spring)
Developing and implementing a security and privacy program in a health care environment. Privacy and security from societal, health care operations, and regulatory perspectives. Final project uses resources in the public domain to design a security and privacy program that supports regulatory compliance requirements and that considers customer/ patient concerns and experience, health care provider experience and workflows, operational workflows, and regulatory compliance. Topics include importance of security in health care; risk concepts and value of health information, usability, and security/privacy; federal and state regulations; impact of technology on security; health care operations; what can be learned from other industries; security certifications; and breach response.

HSM 4193. Directed Study. (1-4 cr. [max 12 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent project. Topic arranged with and supervised by Health Services Management faculty member. prereq: admitted to HSM major, minor, or certificate; department consent.

HSM 4301. Health Care Quality & Patient Safety Management. (3 cr. ; A-F or Audit; Every Spring)
Principles of health care improvement, quality, and patient safety management from the role of the manager and project leadership in health services management. Overall the course is designed to provide an understanding of the concepts and principles of quality management and tools, patient safety, and related quality and safety management accreditation and regulatory requirements. The course will use an applied, real-world approach to ensure understanding of these important issues in health services management.

HSM 4531. Human Resources in Health Care Settings. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Basic understanding of human resources issues within health care organizations--management of human capital to meet organizational objectives, and building and motivating an engaged workforce. Legal principles; labor supply and demand; sourcing, recruitment, selection and orientation; compensation; benefits; diversity; performance management. prereq: 45 cr

HSM 4541. Health Care Finance. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
General principles of financial management for health care industry. Operational knowledge of financial management theory, esp., how hospitals and their departments develop/ balance operating/capital budget for business growth/development. Governmental policies, procedures, and ethical issues controlling the health care industry. prereq: Basic accounting knowledge, a course such as ACCT 2050, and knowledge of Microsoft Excel are strongly recommended. HSM pre-majors should wait for major status to take this course.

HSM 4561W. Health Care Administration and Management. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Knowledge and and skills in the organizational and managerial aspects of health care. Applications of behavioral and organizational theory to health care settings. Topics will include organization models, supervision, employee evaluation, problem solving, productivity management, group leadership, and case studies. As a Writing Intensive course, it will provide management-level communication skills to develop a thoughtful and reflective understanding of the writing (and rewriting) process.

HSM 4572. Gerontology and Geriatrics for Health Services Executives. (3 cr. ; A-F or Audit; Every Fall)
This course helps students understand aging as well as nursing facility operations and functions, administrative structures and responsibilities, and roles of professional and nonprofessional staff. It is designed to meet the National Association of Long Term Care Administrator Boards (NAB) accreditation standards for Health Services Executive (HSE) certification. The NAB has set forth domains of practice for HSEs, which have been adopted by the Minnesota Board of Examiners for nursing home administrators. This course covers the following NAB domains of practice: resident-centered care and quality of life, environment, leadership and management, and core skills across all domains. Prerequisite: Students must have some basic knowledge of the long term care field. Those without it are encouraged to meet with the instructor prior to registering to explore learning strategies.

HSM 4573. Long Term Care Regulatory Management and Law. (3 cr. ; A-F or Audit; Every Spring)
This course helps students understand policies and laws that dictate the minimum standards for nursing facility operations. It is designed to meet the National Association of Long Term Care Administrator Boards (NAB) accreditation standards for the Health Services Executive (HSE) certification. The NAB set forth domains of practice for Health Services Executives. These domains of practice have been adopted by the Minnesota Board of Examiners for nursing home administrators. This course covers the domains involving regulatory and legal aspects of long term care. Prerequisite: Students must have some basic knowledge of the long term care field. Those without it are encouraged to meet with the instructor prior to registering to explore learning strategies.

HSM 4575. Innovation in Health Services. (3 cr. ; A-F or Audit; Every Fall)

This interactive course will help you understand the theory and practical application of innovation to solve big challenges in the health care system. You will learn and apply multiple approaches and tools for innovation and human-centered design to reshape organizational culture, strategy, structures, and systems.

HSM 4582. Practicum in Long Term Care. (; 1 cr. [max 4 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
The Practicum course is the final component of the long term care administrator's education. A broad range of performance parameters are affected by management practices (e.g., employee morale, clinical processes, financial performance, regulatory compliance, quality of life for residents, customer satisfaction, and community/public relations). The course is a transition between the classroom and this executive level of management. Students will undertake a formal practicum project that must be coordinated with 1) the practicum site, 2) a preceptor who is a licensed nursing home administrator at the sponsoring organization, and 3) the course instructor. The intern is expected to make positive contributions to the sponsoring organization. The preceptor functions as a mentor, coach, and tutor. The intern identifies learning objectives and opportunities to meet both short-range goals for gaining work experience and long-range goals for career development through the development of a learning agreement. prereqs: Most prelicensure courses completed--at a minimum, HSM 4580-LTC Organizational Management; HSM 4589-LTC Human Resource Management; HSM 4583-LTC Supports and Services; HSM 4590-LTC Gerontology for Health Care Managers.

HSM 4583. Long Term Care Supports and Services. (2 cr. ; A-F or Audit; Every Spring)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires applicants for initial licensure to complete accredited postsecondary academic courses covering key competencies. This course covers the organization, operations, functions, services, and programs of long-term care supports and services, including the following: governing and oversight bodies and their relationship to the administrator; administrative responsibilities and structures; operations and functions of each facility department; functions and roles of professional and nonprofessional staff and consulting personnel. Prerequisites: Some basic knowledge of the long-term care field. Students without this knowledge are encouraged to meet with the instructor to explore preparation strategies.

HSM 4584. Long Term Care Health and Medical Needs. (1 cr. ; A-F or Audit; Every Fall)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires applicants for initial licensure (and those who are licensed in other states but do not meet Minnesota's regulatory requirements for experience or certification) to complete accredited post-secondary academic courses covering key competencies. This course covers the medical and health needs of nursing facility residents and persons living in community-based settings. Topics include: How anatomic and physiologic changes associated with the aging process affect disease processes and clinical needs. Impact and management of common syndromes associated with aging, including vision/hearing impairment, nutrition/malnutrition, and balance and mobility impairment. Prevention and management of common conditions such as pressure ulcers and delirium. Common psychiatric and neurodegenerative disorders such as dementias (including Alzheimer's), depression, anxiety, psychotic disorders, and alcohol and drug abuse. Advance care planning and the role of palliative care and end-of-life care. Basic medical and pharmacological terminology. Innovative medical trends and emergent technologies used in long-term care settings. Prerequisite: Basic knowledge of the long-term care field. Students who do not have this knowledge are encouraged to meet with the instructor to discuss strategies for obtaining it prior to registering for this course.

HSM 4585. Long Term Care Organizational Management. (1 cr. ; A-F or Audit; Every Fall)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires applicants for initial licensure (and those who are licensed in other states but do not meet Minnesota's regulatory requirements for experience or certification) to complete accredited postsecondary academic courses covering key competencies. HSM 4585 covers the following basic management functions: planning and objective setting; organizing and delegating; and observing, monitoring, and evaluating outcomes. prereq: Basic knowledge of the long term care field. Students without this knowledge are encouraged to consult with the instructor prior to registering to explore preparatory strategies.

HSM 4587. Long Term Care Regulatory Management. (1 cr. ; A-F or Audit; Every Fall)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires applicants for initial licensure (and those who are licensed in other states but do not meet Minnesota's regulatory requirements for experience or certification) to complete accredited post-secondary academic courses covering key competencies. This course is one of those areas. It covers regulatory and funding provisions and requirements governing operation of long-term care services and related health care programs. Topics include Resident rights, resident choice/ resident risk and protection from maltreatment; Guardianship and conservatorship; Health and safety codes including OSHA and National Life Safety Code; Medicare and Medicaid, standards for managed care and sub-acute care, and third-party payer requirements and reimbursement; Federal and state nursing home survey and compliance regulations and processes; Requirements affecting the quality of care and life of residents; Resident acuity and assessment methodology; Quality assurance and performance improvement. prereq: Basic knowledge of the long term care field. Students without this knowledge are encouraged to meet with the instructor prior to registering to discuss options.

HSM 4588. Long Term Care Quality Management and Performance Improvement. (2 cr. ; A-F or Audit; Every Fall)
This course integrates competencies, knowledge, and skills from three interrelated areas to support evidence-based management decision making in long term care. These areas include 1) problem-solving skills, 2) quality management and quality improvement practices, and 3) data analytics. Classwork consists of preclass readings, online preclass discussion, face-to-face one-day seminar, one-day comprehensive Excel homework assignment, and homework assignments. Prerequisites: Basic knowledge of the long term care field. Students without this knowledge are encouraged to meet with the instructor prior to registering to discuss ways of acquiring it. Skill with Excel is strongly recommended.

HSM 4589. Long Term Care Human Resources Management. (1 cr. ; A-F or Audit; Every Fall)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires applicants for initial licensure (and those who are licensed in other states but do not meet Minnesota's regulatory requirements for experience or certification) to complete accredited post-secondary academic courses covering key competencies. Human Resource Management covers the following areas: Workplace culture, accountability and fairness, and just & learning culture concepts. Employment law. Equal employment opportunity, affirmative action and workforce diversity. Staffing and workforce development. Compensation and benefits. Coaching and performance management. Organizational development and staff training and development. Labor relations, including union contract negotiation and administration. Prerequisites: Knowledge of the long-term care field. Students without this knowledge are encouraged to meet with the director of the LTC program prior to registering to discuss strategies for acquiring it.

HSM 4591. Health Care Law and Ethics. (3 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to the major legal and ethical aspects and principles as applied in health services management. Topics include organization and governance of healthcare organizations; regulation; healthcare fraud and abuse; professional licensing and credentialing; compliance, quality and risk management; privacy and security of individually identifiable health information; healthcare decision-making; professional liability and malpractice. Other topics include legal and ethical issues surrounding healthcare technologies, medical research, and medical breakthroughs.

HSM 4592. Long Term Care Health Care Law. (1 cr. ; A-F or Audit; Every Fall)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires

applicants for initial licensure (and those who are licensed in other states but do not meet Minnesota's regulatory requirements for experience or certification) to complete accredited post-secondary academic courses covering key competencies. HSM 4592 covers legal and regulatory issues, ethical perspectives, public policy advocacy and professional reporting requirements related to the operation of long-term care service delivery organizations. The following topics are covered: Professional and biomedical ethics; Liability, negligence, and malpractice; Data confidentiality, privacy and practices; Professional licensing, certification and reporting for staff and consulting personnel; and Advocacy for public policies. Prerequisites: Knowledge of the long-term care field. Students who do not have this knowledge are encouraged to meet with the instructor prior to registering to discuss strategies for gaining this knowledge.

HSM 4593. Gerontology for Health Care Managers. (1 cr. ; A-F or Audit; Every Fall)
The Minnesota Board of Examiners for Nursing Home Administrators (BENHA) requires applicants for initial licensure (and those who are licensed in other states but do not meet Minnesota?s regulatory requirements for experience or certification) to complete accredited post-secondary academic courses covering key competencies. This course covers the requirement related to Gerontology. HSM 4593 covers the following: Issues of cultural diversity and human relationships between and among employees and residents of nursing facilities and their family members. Physical, biological, social and psychological aspects of the aging process. Policies and programs designed to meet the needs of a rapidly aging population. Therapeutic programs for individuals with cognitive impairments. Services to support the needs of family caregivers. Prerequisites: Knowledge of the long-term care field. Students without this knowledge are encouraged to meet with the instructor prior to registering to discuss strategies for acquiring it.

HSM 4596. Health Services Management Internship. (; 1 cr. [max 3 cr.] ; A-F only; Every Fall, Spring & Summer)
This course serves as a requirement in the Bachelor of Applied Science degree in Health Services Management. Students will apply coursework in the health services management area and contribute knowledge of best practices to make a positive impact on the health services management workplace and industry. Students will participate in career development activities, a challenge project, and networking. prereq: HSM major; dept. consent. Permission to enroll will be granted only upon completion of HSM 3051, 3521, 4531, 4541, 4561W, & 4591. Highly recommended: HSM 4043 & 4301 (and HINF 5430 for HSM technology internships).

HSM 4861. Leadership and Business Planning in Health Care: Capstone. (3 cr. ; A-F only; Every Fall & Spring)
The course is a core requirement in the HSM major and allows students to synthesize and integrate lessons from previous courses. It covers theory and practice of leadership skills needed for high-performing health care organizations in changing and turbulent times. It emphasizes a four-phase approach: environmental assessment, planning, strategy and innovation, and implementation/ measurement. Students will be prepared to embrace innovation and lead business plans through to successful implementation. They will learn to integrate a wide range of management tools through collaborative development of a strategic business plan. prereq: HSM 3521, 4531, 4541, 4561, 4591. HSM major. Final year status required.

Hebrew (HEBR)

HEBR 1001. Beginning Hebrew I. (; 5 cr. ; Student Option; Every Fall)
For beginners whose goal is biblical or post-biblical Jewish studies or modern Israeli Hebrew. Leads to speaking, listening comprehension, and reading and writing Hebrew. Emphasizes communication proficiency. Cultural materials are incorporated.

HEBR 1002. Beginning Hebrew II. (; 5 cr. ; Student Option; Periodic Fall & Spring)
Continuation of 1001. Leads to speaking, listening comprehension, reading, and writing Hebrew. Emphasizes communication proficiency. Cultural materials. prereq: Grade of at least [C- or S] in [1001 or 4001] or instr consent

HEBR 1101. Beginning Biblical Hebrew I. (; 5 cr. ; Student Option; Periodic Fall)
The Hebrew Bible is one of the most important literary texts in world history, and one of the most culturally and morally influential in the development of western civilization. Most of this influence, however, has been via translation. Have you ever wondered if you can trust the translation? Does the Adam and Eve story really say what you think it does? Does the Hebrew Bible really include all the strict moral pronouncements and prohibitions that are attributed to it? This course offers the tools you need to read simple narrative texts in the Bible for yourself, while also introducing you to multiple approaches in biblical scholarship. Biblical Hebrew also satisfies the CLA Language requirement.

HEBR 1102. Beginning Biblical Hebrew II. (; 5 cr. ; Student Option; Spring Even Year)
Progression to more sophisticated reading of narrative, prophetic, and legal texts. Presentation/discussion of multiple approaches to problems/issues in biblical scholarship. prereq: Grade of at least [C- or S] in [1101 or 4104] or instr consent

HEBR 3011. Intermediate Hebrew I. (; 5 cr. ; Student Option; Every Fall)
Prepares students for CLA language requirement. Speaking, reading, writing, and comprehension of modern Hebrew. Students read/discuss prose, poetry, news, and film. Important features of biblical/classical Hebrew. Taught primarily in Hebrew. prereq: Grade of at least [C- or S] in [1002 or 4002] or instr consent

HEBR 3012. Intermediate Hebrew II. (; 5 cr. ; Student Option; Every Spring)
Extensive reading of simplified modern Hebrew prose selections. Students discuss poetry, newspaper, film, and TV in Hebrew. Israeli cultural experiences. Hone composition, listening comprehension, and speaking skills to prepare for proficiency exams. Biblical prose, simple poetic texts. Taught in Hebrew. Meets with 4012. prereq: Grade of at least [C- or S] in in 3011 or instr consent

HEBR 3090. Advanced Modern Hebrew. (; 3 cr. [max 18 cr.] ; Student Option; Every Fall)
Preparation to read various kinds of authentic Hebrew texts and to develop higher levels of comprehension/speaking. Conducted entirely in Hebrew. Emphasizes Modern Israeli Hebrew. Introduction to earlier genres. Grammar, widening vocabulary. Contemporary short fiction, essays, articles on cultural topics, films, Hebrew Internet sites, TV. prereq: 3012 or instr consent

HEBR 3101. Intermediate Biblical Hebrew I. (; 4 cr. ; Student Option; Fall Odd Year)
Text of Hebrew Bible. Basic research tools/ commentaries. Close reading of narrative biblical texts. Reading fluency, methods of research in biblical studies. prereq: Grade of at least [C- or S] in [1102 or 4105] or instr consent

HEBR 3102. Intermediate Biblical Hebrew II. (; 4 cr. ; Student Option; Spring Odd Year)
Text of Hebrew Bible, basic research tools and commentaries. Close reading of narrative biblical texts. Reading fluency, methods of research in biblical studies. Meets with 4107. prereq: Grade of at least [C- or S] in 3101 or instr consent

HEBR 3951W. Major Project. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Research project using primary and secondary sources. Students select project in consultation with a faculty member, who directs the research/writing. prereq: [Hebr major, three 3xxx Hebrew courses], instr consent, dept consent

HEBR 3980. Directed Instruction. (1-4 cr. ; Student Option; Every Fall & Spring)
Students observe/discuss classes. Gradually increased participation in preparing/presenting instructional materials to a beginning Hebrew class. Evaluation of materials, teaching techniques. Seminars on language teaching issues. Prereq college consent.

HEBR 3993. Directed Studies. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

HEBR 4001. Beginning Hebrew I for Graduate Student Research. (; 5 cr. ; Student Option; Every Fall)
For beginners whose goal is biblical or post-biblical Jewish studies or modern Israeli Hebrew. Leads to speaking, listening comprehension, and reading and writing Hebrew. Emphasizes communication proficiency. Cultural materials are incorporated. Meets concurrently with 1001. prereq: grad student

HEBR 4002. Beginning Hebrew II for Graduate Student Research. (; 5 cr. ; Student Option; Periodic Fall & Spring)

Continuation of 4001. Leads to speaking, listening comprehension, reading, and writing Hebrew. Emphasizes communication proficiency. Cultural materials. Meets with 1002. prereq: Grade of at least [C- or S] in [1001 or 4001] or instr consent

HEBR 4011. Intermediate Hebrew I. (; 5 cr. ; Student Option; Every Fall)
Prepares students for CLA language requirement. Speaking, reading, writing, and comprehension of modern Hebrew. Students read and discuss prose, poetry, news, and film. Taught primarily in Hebrew. prereq: Grade of at least [C- or S] in [1002 or 4002] or instr consent

HEBR 4012. Intermediate Hebrew II for Graduate Student Research. (; 5 cr. ; Student Option; Every Spring)
Extensive reading of simplified modern Hebrew prose selections. Students discuss poetry, newspaper, film, and TV in Hebrew. Israeli cultural experiences. Hone composition, listening comprehension, and speaking skills to prepare for proficiency exams. Biblical prose, simple poetic texts. Taught in Hebrew. Meets with 3012.

HEBR 4104. Beginning Biblical Hebrew I for Graduate Student Research. (; 5 cr. ; Student Option; Periodic Fall)
The Hebrew Bible is one of the most important literary texts in world history, and one of the most culturally and morally influential in the development of western civilization. Most of this influence, however, has been via translation. Have you ever wondered if you can trust the translation? Does the Adam and Eve story really say what you think it does? Does the Hebrew Bible really include all the strict moral pronouncements and prohibitions that are attributed to it? This course offers the tools you need to read simple narrative texts in the Bible for yourself, while also introducing you to multiple approaches in biblical scholarship. Biblical Hebrew also satisfies the CLA Language requirement.

HEBR 4105. Beginning Biblical Hebrew II for Graduate Student Research. (; 5 cr. ; Student Option; Spring Even Year)
Progression to more sophisticated reading of narrative, prophetic, and legal texts. Presentation and discussion of multiple approaches to problems and issues in biblical scholarship. Meets with 1102. prereq: Grade of at least [C- or S] in [1101 or 4104] or instr consent

HEBR 4106. Intermediate Biblical Hebrew I. (; 3 cr. ; Student Option; Every Fall)
Text of Hebrew Bible. Basic research tools/ commentaries. Close reading of narrative biblical texts. Reading fluency, methods of research in biblical studies. Meets with 3101. prereq: Grade of at least [C- or S] in [1102 or 4105] or [instr consent, grad student]

HEBR 4107. Intermediate Biblical Hebrew II for Graduate Student Research. (; 4 cr. ; Student Option; Spring Odd Year)
Text of Hebrew Bible, basic research tools and commentaries. Close reading of narrative biblical texts. Reading fluency, methods of research in biblical studies. Meets with 3102. prereq: Grade of at least [C- or S] in 3101 or instr consent

HEBR 5090. Advanced Modern Hebrew. (; 3 cr. [max 18 cr.] ; Student Option; Every Fall)
Various authentic Hebrew texts. Comprehension/speaking. Conducted entirely in Hebrew. Emphasizes Modern Israeli Hebrew. Grammar, widening vocabulary. Contemporary short fiction, essays, articles on cultural topics, films, Hebrew Internet sites, TV.

HEBR 5200. Advanced Classical Hebrew. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
In-depth reading, analysis, and discussion of classical Hebrew texts. Grammar, syntax. Introduction to text-criticism, history of scholarship, and scholarly tools. Format varies between survey of themes (e.g., law, wisdom, poetry) and extended concentration upon specific classical texts.

HEBR 5300. Post-Biblical Hebrew: Second Temple Period. (; 3 cr. [max 18 cr.] ; Student Option; Periodic Spring)
Readings in late-/post-biblical Hebrew literature of Persian, Hellenistic, and early Roman periods (e.g., Chronicles, Ezra-Nehemiah, Ecclesiastes, Daniel, Dead Sea Scrolls, apocrypha, pseudepigrapha). Focuses on historical development of Hebrew language and literature in relation to earlier biblical sources. prereq: Grad student or instr consent

HEBR 5990. Topics in Hebrew Studies. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall)
Historical, linguistic, literary, religious, or humanistic study of Hebrew society/culture. Approach/method of study varies with topic. prereq: Grad student or instr consent

HEBR 5992. Directed Readings. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

Higher Ed Consortium Urban Aff (HECU)

HECU 3555W. Making Media & Change: Digital Technologies, Storytelling, and Activism From Consumers to Creators. (AH,WI,CIV; 4 cr. ; A-F only; Every Fall & Spring)
The From Consumers to Creators course is a critical exploration of the role of storytelling and media in social change efforts. In this course will examine the ways that story is both a lens through which one understand the world and a tool which can be used to shape it. Students will have the opportunity to learn about and evaluate media-based activist strategies in the context of competing theoretical perspectives on media and society. Students will use theory and field experiences to reflect upon and hone their own digital practices as an effective agent of social change. This course is one of two required linked courses taken concurrently which make up the Making Media, Making Change Digital Technologies, Storytelling, and Activism program taught through our institutional partnership with HECUA {and their community partner, the Twin Cities public access media powerhouse St Paul Neighborhood Network (SPNN), which provides technical training, equipment, and video production support. Students are also enrolled in HECU 3556 Digital Laboratory and have the opportunity to register for an optional internship the following semester or summer at SPNN, where students can strengthen relationships with the diverse set of actors in the Twin Cities committed to using digital media to share their voices and build community. Interns contribute to public access and nonprofit programming and create professional quality video for community organizations in the Twin Cities. Departmental Consent Required.

HECU 3556. Making Media Making Change: Digital Technologies, Storytelling, and Activism Digital Laboratory. (; 4 cr. ; A-F only; Every Fall & Spring)
The Digital Laboratory course is focused on the development and production of compelling videos. Student videography is expected to demonstrate both innovative content and high quality production. As part of this course, students will be trained by SPNN staff in camera operations, aesthetics of video production, shot composition, audio, lighting, and editing. Work will be graded with one's growing skill set in mind. Instructors will look for improvement in both the technical elements and the student's ability to create engaging and original work that reflects our focus on media that catalyzes social change. By the end of the semester students will be able to produce video suitable for public broadcast. While the coursework is integrated, we will spend most Wednesdays focused on the Digital Laboratory. The Digital Laboratory course is one of two required linked concurrently offered courses that make up the Making Media, Making Change: Digital Technologies, Storytelling and Activism program taught through our institutional partnership with HECUA {and their community partner, the Twin Cities public access media powerhouse St Paul Neighborhood Network (SPNN), which provides technical training, equipment, and video production support). Students are also enrolled in HECU 3556 Digital Laboratory and have the opportunity to register for an optional internship HECU 3557 or 3558 the following semester or summer. at SPNN, where students can strengthen relationships with the diverse set of actors in the Twin Cities committed to using digital media to share their voices and build community. Interns contribute to public access and nonprofit programming and create professional quality video for community organizations in the Twin Cities. Departmental Consent Required.

HECU 3557. Making Media, Making Change: Digital Technologies, Storytelling, & Activism Digital Media Internship. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
An optional Internship in Digital Media course is offered for students who have participated in Making Media, Making Change: Digital Technologies, Storytelling, and Activism. The internship allows students to put their passion

to work at St. Paul Neighborhood Network (SPNN) and deepen their understanding of how the core issues in the program's two linked courses (HECU 3555W and 3556) play out in this community media center and shape professional practice in digital media. Students typically take the Internship in the semester or summer immediately after the initial core courses, but may be eligible to take it concurrently or in fall semester after the Spring program, with instructor consent. Working at SPNN, students build networks in the diverse set of practitioners in the Twin Cities committed to using digital media for social change. Interns contribute to public access and nonprofit programming and create professional quality video for community organizations in the Twin Cities. Departmental Consent required. Successful completion or concurrent enrollment in HECU 3555W and 3556. Credit cannot be earned if already granted for HECU 3558.

HECU 3558. Making Media, Making Change: Digital Technologies, Storytelling, and Activism Digital Internship. (; 8 cr. ; A-F only; Every Fall, Spring & Summer)
An optional Internship in Digital Media course is offered for students who have participated in Making Media, Making Change: Digital Technologies, Storytelling, and Activism. The internship allows students to put their passion to work at St. Paul Neighborhood Network (SPNN) and deepen their understanding of how the core issues in the program's 2 linked courses (HECU 3555W and 3556) play out in this community media center and shape professional practice in digital media. Students typically take the Internship in the semester or summer immediately after the initial core courses, but may be eligible to take it concurrently or in fall semester after the Spring program, with instructor consent. Working at SPNN, students build networks in the diverse set of practitioners in the Twin Cities committed to using digital media for social change. Interns contribute to public access and nonprofit programming and create professional quality video for community organizations in the Twin Cities. Departmental Consent required. Successful completion or concurrent enrollment in HECU 3555W and 3556. Credit can not be earned if already granted for HECU 3557.

HECU 3571W. Inequality in America: A Political Economy Approach. (SOCS,WI; 4 cr. ; A-F only; Every Fall & Spring)
This seminar provides the theoretical foundations necessary for understanding the roots, dynamics, and reproduction of urban and regional economic, political, and social inequality and poverty. It will also equip students with the key theoretical tools for evaluating alternative policies and strategies for addressing various forms of poverty and inequality. Theory will be treated in an integrated fashion with students' field and internship work and will draw from numerous disciplines but with a particular focus on the field of political economy. Students examine a series of interrelated social systems relevant to the study of poverty and inequality such as the economy, the politics of economic policy, labor markets, geographic systems and housing, education and welfare systems. Theories of oppression help students understand how institutionalized racism, classism and gender discrimination factor in and among all of these systems. This course is one of three courses taken concurrently that make up the Inequality in America: Policy, Community, and the Politics of Empowerment program taught through our institutional partnership with HECUA. Students are also enrolled in HECU 3572 Political Sociology of Building Power, Change, and Equity and HECU 3573 Internship and Integration Seminar. prereq: departmental consent required

HECU 3572. Inequality in America: Political Sociology of Building Power, Change, and Equity (Field Seminar). (DSJ; 4 cr. ; A-F only; Every Fall & Spring)
This seminar illuminates, grounds, and 'tests' theoretical perspectives and insights gained in the "Inequality in America: A Political Economy Approach" seminar. Students will examine a variety of policy alternatives and strategies for social change used to address poverty and inequality by conversing with policy makers, community activists, and public and private organizations, and by participating in a number of structured field exercises and legislative lobbying. This course is one of three courses taken concurrently that make up the Inequality in America: Policy, Community, and the Politics of Empowerment program taught through our institutional partnership with HECUA. Students are also enrolled in HECU 3571 Inequality in America: A Political Economy Approach and HECU 3573 Internship and Integration Seminar. Departmental Consent Required.

HECU 3573. Inequality in America: Internship and Integration Seminar. (; 8 cr. ; A-F only; Every Fall & Spring)
The Internship and Integration Seminar is an 8 credit course comprised of two interconnected parts.. The internship is concentrated practice, and facilitates student learning on many levels. Students integrate and refine their theoretical understanding, build and develop skills, gain a greater understanding of methods of social change, and grow in their understanding of vocation. The program deliberately integrates these experiences with themes and experiences from the other courses in the program. Students work a minimum of 200 hours at their placement, approximately 20 hours each week for the duration of the program. This seminar integrates theoretical and experiential work in the other seminars of the program with internship work, and provides further theoretical frameworks for making meaning from the internship experiences. Students analyze the operation of organizations that are dedicated to changing systemic inequalities, learn how, when, and why organizations collaborate, and explore the perspectives that internship organizations and staff bring to individual and societal change. Assignments ask students to articulate and assess worldviews on social change and movement-building, including; their own, those in texts discussed in the classroom, those expressed by field speakers who visit the program, and staff at their internship sites. Through guided examination of the assumptions they bring to interactions with practitioners and communities, students see how those varying worldviews play out within organizations and in processes of social change. Finally, students reflect on the impacts their classroom training and lived experiences have in real-world work and community environments, and articulate plans for their future engagement. This course is one of three courses taken concurrently that make up the Inequality in America: Policy, Community, and the Politics of Empowerment program taught through our institutional partnership with HECUA. Students are also enrolled in HECU 3571 Inequality in America: A Political Economy Approach and HECU 3572 Political Sociology of Building Power, Change and Equity. Departmental consent required.

HECU 3574. Race in America: Then and Now: "Post-Racial" Perspectives on the Civil Rights Movement. (DSJ; 4 cr. [max 6 cr.] ; A-F only; Every Summer)
Based in Jackson, Mississippi, with travel to sites in Alabama, Tennessee, and Louisiana. Offered each June. This program explores struggles and movements for racial equality from the 1960s to the present, and dives into questions of racial justice in America today. Students meet with civil rights activists active in the 1960s, and those who are active now--activists, lawyers, politicians, educators and youth. Field experiences open up connections among issues such as education, incarceration, distribution of wealth, health care, housing, employment, and the environment. Students also delve into racial identity development theory, the philosophy of nonviolence, and the functioning of social movements. By the end of the month, students have a profound understanding of the Civil Rights Movement and its motivations, strategies, successes and failures. They have also developed ways to make meaningful contributions to their own communities. The program is based in Jackson, Mississippi, where students stay at Jackson State University, one of America's Historically Black Colleges and Universities. Mississippi typified the "Deep South" during the era of Jim Crow, and in many ways continues to be racially and politically divided. In and near Jackson and during trips to Alabama, Tennessee, and the Gulf Coast (including New Orleans), students also explore current issues related to health, education, culture, and community organizing.

HECU 3581. Art for Social Change: Art and Culture in Political, Social, and Historical Context. (AH; 4 cr. ; A-F only; Every Spring)
In this course, students will combine new learning from field speakers, books, articles, guest speakers, and field trips to gain a deeper understanding of the need for and approach to effective community-based artistic engagement. Each student will participate in or facilitate engaged conversations with their peers to grapple with the themes of the course and have the chance to create artistic projects that help each other integrate their

new learning and awareness. Concurrent registration is required in HECU 3582 and HECU 3583; Departmental Consent required.

HECU 3582. Art for Social Change: Arts Praxis - Social Justice Theory and Practice in the Field. (DSJ; 4 cr. ; A-F only; Every Spring)
Arts, popular culture, social change. Interdisciplinary field study, seminar work, internship. prereq: concurrent registration is required (or allowed) in 3581, 3583, dept consent

HECU 3583. Art for Social Change: Intersections of Art, Identity and Advocacy Internship & Integration Seminar. (CIV; 8 cr. ; A-F only; Every Spring)
In this Art for Social Change Internship and Integration seminar students will work with HECUA to be placed in an internships which will offer them the chance to integrate and apply their learning in professional settings. As an intern, students will gain skills in communication, discipline, organization, project management, and turning theory into action. By completing a HECUA internship, students will have a critical competitive edge in the job market after graduating. In addition to professional development, students will also leave their internship experience with a better sense of the type of job and work environment they want to find and the steps needed to take to get there. Students are required to be concurrently registered in HECU 3581 and 3582. Spring semester offering.

HECU 3591. Environmental Sustainability: Sci, Public Policy, & Cmty Action Climate & Environment Justice. (; 4 cr. ; A-F only; Every Fall)
In the twenty-first century, the environmental century, human beings must decide how to deal with the many planetary consequences of the ?Great Acceleration? and its conjunction with the 500-year pattern of conquest, genocide, and extreme social marginalization of indigenous peoples and poor peoples of color. As we consider how to respond to climate change, restore degraded ecosystems, and promote a sustainable quality of life in human settlements, how might we do this in an environmentally just approach? This is the basic question to be explored in this course, in light of the past record of the inequitable distribution and accumulated disadvantage resulting from historical environmental behavior in societies and global civilization as a whole. This course is one of four courses which make up the Environmental Sustainability: Ecology, Policy and Social Transformation Program taught by Study Away partner HECUA. Concurrent registration is required in 3592, in 3593, and in 3594, Fall semester. Dept consent required.

HECU 3592. Environmental Sustainability: Ecology and Socio-ecological Systems Change. (; 4 cr. ; A-F only; Every Fall)
Since our original hunter-gatherer communities, humans have had an impact, sometimes quite negative, on our environment. What is different now, since the ?Great Acceleration? that began in the mid-twentieth century, is that our environmental impacts are global in scope and potentially catastrophic in scale. Learning to become ecologically wise is thus a priority for all of humanity in the twenty-first century. Socio-Ecological Systems bridges political science and environmental sciences with the intent of fostering policy responses that help human society apply ecological wisdom in a timely manner at worst, and in an ecologically regenerative manner at best. In this course, we will integrate questions regarding sustainability challenges of water, forest, wetland, climate, soil, with those involving people, cultures, politics, and economy in a comprehensive, integral framework. This investigation will build students? ability to see complex dynamics more clearly, and prepare students to be part of efforts to create ecologically wise policy and practices for a more sustainable future. This course is one of four courses which make up the Environmental Sustainability: Ecology, Policy and Social Transformation Program taught by Study Away partner HECUA. Concurrent registration is required in 3591, in 3593, and in 3594, Fall semester program. Dept consent required.

HECU 3593. Environmental Sustainability Sci, Public Policy, & Cmty Action Field Research Method & Investigation. (BIOL; 4 cr. ; A-F only; Every Fall)
The Field Methods course provides students with practical skills to assess and improve ecosystems and decision-making in socio-ecological systems. We will use a text by Bill Mollison, a founder of permaculture, to learn how to work with nature to improve ecological, communal, and personal health simultaneously. This course is designed to help students develop the capacity for constant and consistent ecological thinking, in order to participate in wise and effective decision-making at the interface of the human and natural worlds. All field-based learning in the course takes place in partnership with community organizations and branches of government that are working actively as ecological stewards and promoting sustainability of human society and specific settlements with wise design. We will learn and apply conceptual, organizational, and technical skills to help our community and institutional partners in this process. This course engages Lily Springs Farm as a field-learning site. We work with a permaculture designer and farmer on-site to use a variety of techniques to assess the landscape and to design and implement ecologically restoration strategies for: a lake; a wetland; a farm system, a pine plantation being slowly converted to an oak savanna mimic; and 30 acres of forest that has been largely undisturbed for the past thirty years. This course is one of four courses which make up the Environmental Sustainability: Ecology, Policy, and Social Transformation Program taught by Study Away partner HECUA. Concurrent registration is required in 3591, in 3592, and in 3594, Fall semester program. Dept consent required.

HECU 3594. Environmental Sustainability Sci, Public Policy, & Cmty Action Internship. (; 4 cr. ; A-F only; Every Fall)
The internship provides concentrated practice at an organization whose core work addresses issues raised in this program. At the internship, students integrate and refine their theoretical understanding, build and develop skills, and grow in their understanding of future career paths. Facilitated reflection, written assignments, and activities that include time at another student's internship site, integrate the internship experiences with the other courses. Students work a minimum of 160 hours at their placement, 12-15 hours/week for 12 weeks during the program. This course is one of four courses which make up the Environmental Sustainability: Ecology, Policy and Social Transformation Program taught by Study Away partner HECUA. Concurrent registration is required in 3591, in 3592, and in 3593, Fall semester program. Dept consent required.

Hindi (HNDI)

HNDI 1011. Beginning Hindi I. (; 5 cr. ; Student Option No Audit; Every Fall)
Basic listening, speaking, reading, and writing skills. Emphasis on the development of communicative competence.

HNDI 1012. Beginning Hindi II. (; 5 cr. ; Student Option No Audit; Every Spring)
Basic listening, speaking, reading, and writing skills. Emphasizes communicative competence.

HNDI 1015. Accelerated Beginning Hindi. (; 5 cr. ; Student Option No Audit; Periodic Fall)
Aspects of linguistic performance: speaking, reading, writing, listening. Cultural/linguistic literacy about South Asia and, in paricular, India. Emphasizes individual learning styles/ preferences for students to understand/retain information.

HNDI 3016. Accelerated Intermediate Hindi. (; 5 cr. ; Student Option No Audit; Every Spring)
Conversational aspect of Hindi. Interactive group activities, video/lab sessions. Engaging in reasonably fluent discourse. Formal grammar. Advanced reading, writing, and comprehension. Different genres/styles of spoken/written Hindi. Taught mainly in Hindi.

HNDI 3021. Intermediate Hindi I. (; 5 cr. ; Student Option No Audit; Every Fall)
Development of reading, writing, speaking, and listening skills. Grammar review, some basic compositions and oral presentations.

HNDI 3022. Intermediate Hindi II. (; 5 cr. ; Student Option No Audit; Every Spring)
Development of reading, writing speaking, and listening skills. Grammar review, some basic compositions and oral presentations.

HNDI 3031. Advanced Hindi I. (4 cr. ; Student Option No Audit; Every Fall)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Hindi beyond intermediate level. prereq: 3022 or instr consent

HNDI 3032. Advanced Hindi II. (4 cr. ; Student Option No Audit; Every Spring)
This course is the second half of the Advanced Hindi course sequence. Continued emphasis

on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Hindi beyond intermediate level. prereq: HNDI 3031 or instr consent

HNDI 4001. Beginning Hindi I for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall)
Basic listening, speaking, reading, and writing skills. Emphasis on the development of communicative competence. Meets with 1011.

HNDI 4002. Beginning Hindi II for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Spring)
Basic listening, speaking, reading, and writing skills. Emphasizes communicative competence. Meets with 1012.

HNDI 4003. Intermediate Hindi I for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall)
Development of reading, writing, speaking, and listening skills. Grammar review, some basic compositions and oral presentations. Meets concurrently with 3021.

HNDI 4004. Intermediate Hindi II for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Spring)
Development of reading, writing speaking, and listening skills. Grammar review, some basic compositions and oral presentations. Meets concurrently with 3022.

HNDI 4005. Advanced Hindi I for Graduate Research. (4 cr. ; Student Option No Audit; Every Fall)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Hindi beyond intermediate level. Meets with HNDI 3031. prereq: 4004 or instr consent

HNDI 4006. Advanced Hindi II for Graduate Research. (4 cr. ; Student Option No Audit; Every Spring)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Hindi beyond intermediate level. Meets with HNDI 3032. prereq: 4005 or instr consent

HNDI 4015. Accelerated Beginning Hindi for Graduate Research. (5 cr. ; Student Option No Audit; Periodic Fall)
Aspects of linguistic performance: speaking, reading, writing, listening. Cultural/linguistic literacy about South Asia and, in particular, India. Emphasizes individual learning styles/ preferences for students to understand/retain information.

HNDI 4016. Accelerated Intermediate Hindi for Graduate Research. (5 cr. ; Student Option No Audit; Periodic Spring)
Conversational aspect of Hindi. Interactive group activities, video/lab sessions. Engaging in reasonably fluent discourse. Formal grammar. Advanced reading, writing, and comprehension. Different genres/styles of spoken/written Hindi. Taught mainly in Hindi.

HNDI 5040. Readings in Hindi Texts. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Read authentic materials of various types to improve reading/speaking ability.

HNDI 5993. Directed Study. (1-5 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study of modern Hindi-Urdu texts. Prereq instr consent, dept consent, college consent.

Hindi-Urdu (HNUR)

HNUR 1011. Beginning Hindi-Urdu I. (5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing. Development of communicative competence.

HNUR 1012. Beginning Hindi-Urdu II. (5 cr. ; Student Option No Audit; Every Spring)
Listening, speaking, reading, writing. Development of communicative competence. prereq: 1011 or instr consent

HNUR 1015. Accelerated Beginning Hindi-Urdu. (5 cr. ; Student Option No Audit; Every Spring)
This course is designed for students who already have good speaking skills (mainly heritage students) or those who studied Hindi/Urdu in the past and can review basic knowledge of the language at a faster pace than that of regular language classes. Course focuses on all four skills (plus cultural skills) and employs the communicative approach as a main teaching methodology. The Hindi/ Urdu script will be introduced right from the beginning. By the end of semester, students will be equipped with linguistic and cultural competencies that will enable them to communicate successfully with people of the target country at a novice-high level, and have a good foundation on which to further build proficiency in the language. Students will learn materials that are normally covered in a full academic year.

HNUR 3021. Intermediate Hindi-Urdu I. (5 cr. ; Student Option No Audit; Every Fall)
Reading, writing, speaking, listening skills. Grammar review, basic compositions, oral presentations. prereq: 1012 or instr consent

HNUR 3022. Intermediate Hindi-Urdu II. (5 cr. ; Student Option No Audit; Every Spring)
Reading, writing, speaking, listening skills. Grammar review, basic compositions, oral presentations. prereq: 3021 or instr consent

HNUR 3032. Advanced Hindi-Urdu II. (4 cr. ; Student Option No Audit; Every Spring)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Hindi/Urdu beyond intermediate level. prereq: 3031 or instr consent

HNUR 3290. Hindi-Urdu Language Teaching Tutorial. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Students tutor beginning students of Hindi-Urdu and are part of department's Hindi-Urdu language team. prereq: Grade of A in HNDI 4162

HNUR 4001. Beginning Hindi-Urdu I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing. Development of communicative competence.

HNUR 4002. Beginning Hindi-Urdu II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Listening, speaking, reading, writing. Development of communicative competence. prereq: 4001 or instr consent

HNUR 4003. Intermediate Hindi-Urdu I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Reading, writing, speaking, listening skills. Grammar review, basic compositions, oral presentations. prereq: 4002 or instr consent

HNUR 4004. Intermediate Hindi-Urdu II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Reading, writing, speaking, listening skills. Grammar review, basic compositions, oral presentations. prereq: 4003 or instr consent

HNUR 4005. Advanced Hindi-Urdu I for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Fall)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. speak, read, write in Hindi/Urdu beyond intermediate level. prereq: 4004 or instr consent

HNUR 4006. Advanced Hindi-Urdu II for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Spring)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Hindi/Urdu beyond intermediate level. Meets with HNUR 3032. prereq: 4005 or instr consent

HNUR 4015. Accelerated Beginning Hindi-Urdu for Graduate Research. (5 cr. ; Student Option No Audit; Every Spring)
This course is designed for students who already have good speaking skills (mainly heritage students) or those who studied Hindi/Urdu in the past and can review basic knowledge of the language at a faster pace than that of regular language classes. Course focuses on all four skills (plus cultural skills) and employs the communicative approach as a main teaching methodology. The Hindi/ Urdu script will be introduced right from the beginning. By the end of semester, students will be equipped with linguistic and cultural competencies that will enable them to communicate successfully with people of the target country at a novice-high level, and have a good foundation on which to further build proficiency in the language. Students will learn materials that are normally covered in a full academic year.

History (HIST)

HIST 1000. New Topics in History. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Courses on new topics in history, historical topics related to current events, and other special subjects. Contact the History department for current listings.

HIST 1011W. Civilization and the Environment: World History to 1500. (ENV,WI,HIS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Sweep of history, from first prehistoric societies to dawn of modern world circa 1500. Forces that pushed humans to continually explore new environments and develop higher levels of social organization and cross-cultural interaction. prereq: Fr or soph or non-hist major

HIST 1012W. The Age of Global Contact. (GP,WI,HIS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Five centuries of globalization. How the modern, interconnected world came into being. Changing material life (food, clothes, petroleum) and ideologies/beliefs. Analysis of primary documents to show how historical knowledge is produced. prereq: Fr or soph or non-hist major

HIST 1015W. Globalization: Issues and Challenges. (GP,WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Increased global interconnections over past 50 years. Impact of information revolution on human rights, economic inequality, ecological challenges, and decolonization. Cases in Asia, Africa, Latin America, or Middle East. prereq: Fr or soph or non-hist major

HIST 1031W. Europe and the World: Expansion, Encounter, and Exchange to 1500. (GP,WI,HIS; 4 cr. ; Student Option; Every Fall)
Europe, from Hammurabi to Columbus. Heyday of ancient Near East, Late Middle Ages. Culture, European interactions with wider world through religion, conquest, and trade. Beginning of the age of discoveries. prereq: Fr or soph or non-hist major

HIST 1032W. Europe and the World: Expansion, Encounter, and Exchange from 1500 to Present. (GP,WI,HIS; 4 cr. ; Student Option; Every Spring)
Emergence of a Europe of nations/empires. Transformations through revolutions, wars, and encounters with world regions. prereq: Fr or soph or non-hist major

HIST 1081W. Martyrs, Monks, Crusaders: World Christianity, 100-1400. (GP,WI,HIS; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
This course surveys the history of Christianity from its status as a persecuted minority religion of the Roman Empire to its dominant role in medieval Europe and Byzantium. We study Christian traditions in Asia and Africa as well as Europe with special attention to the relationship between Christianity and culture in the ancient and medieval world.

HIST 1082. Jesus in History. (HIS; 3 cr. ; Student Option; Every Spring)
Who was Jesus? While there has been some basic consistency in the depictions of Jesus throughout history, there has also been lots of variety. We will explore a whole host of portraits of Jesus at different points in history to demonstrate not only the varying ways that Jesus has been thought of but also to understand the relationship between these portraits and the historical and cultural contexts in which they were created. We will look at the gospels of the New Testament and some from outside the New Testament. We will look at ancient and medieval art. And we will look at modern film. Although we might not get to the bottom of who Jesus was, we might understand more fully how communities throughout history have thought about him. Intended as a course of interest to undergraduates in all colleges of the TC campus. Students of any, all, or no religious background are welcome.

HIST 1102. Medieval Tales and their Modern Echoes. (GP,LITR; 3 cr. ; Student Option; Every Spring)
Knights of Round Table, dragon-slayers, magic djinn, pilgrims in Hell. How stories have been retold in modern fiction, film, arts. Texts from Europe/other regions of globe.

HIST 1301W. Authority and Rebellion: American History to 1865. (DSJ,WI,HIS; 4 cr. ; Student Option; Every Fall)
Conflict/change, from colonial era through Civil War. colonization/resistance, slavery, nation-building, westward expansion, gender roles, religion, reform, race/ethnicity, immigration, industrialization, class relations. Students use primary sources, historical scholarship. prereq: Fr or soph or non-hist major

HIST 1302W. Global America: U.S. History Since 1865. (DSJ,WI,HIS; 4 cr. ; Student Option; Every Spring)
U.S. history since Civil War, in global context. Emancipation. Forms of labor. Immigration. Citizenship. Conceptions of race/gender. Hot/cold wars. Reform/rights movements. Globalization. State power. Students use primary sources, historical scholarship. prereq: Fr or soph or non-hist major

HIST 1307. Authority and Rebellion: American History to 1865. (HIS; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Conflict/change, from colonial era through Civil War. Colonization/resistance, slavery, nation-building, westward expansion, gender roles, religion, reform, race/ethnicity, immigration, industrialization, class relations. Students use primary sources, historical scholarship.

HIST 1308. Global America: U.S. History Since 1865. (HIS; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
U.S. history since Civil War, in global context. Emancipation. Forms of labor. Immigration. Citizenship. Changing conceptions of race/gender. Hot/cold wars. Reform/rights movements. Globalization. State power. Students use primary sources, historical scholarship.

HIST 1361W. World War I: A Global History. (HIS,WI,TS; 3 cr. ; A-F only; Every Fall)
This class takes a global approach to the examination of World War One's causes and consequences. We will look at how the war unfolded in Europe, Africa, and the Middle East. We will also explore the war's impact on North America and Australasia, areas drawn into the conflict because of their unique relationships with Britain and France. We will consider the special role played by the U.S. in restoring world peace and analyze the lasting social and political cleavages occasioned by the war. We will get at the heart of how the war was fought and how it is remembered for all of its triumphs and tragedies.

HIST 1362. Global History of World War II. (HIS; 3 cr. ; Student Option; Every Spring)
This course examines 1) how different countries remember WWII and how memories of the war have been shaped by domestic and international contexts of each country and 2) how WWII changed the world in areas of human rights, the government-society relations, and ethical use of science and technology. Various faculty members with different geographical and thematic expertise come to the class as guest lecturers throughout the semester.

HIST 1364. Introduction to Global Environmental History. (ENV,HIS; 3 cr. ; Student Option; Fall Even Year)
This introductory course focuses on human environment interaction and the role of environmental factors in shaping of world history from the early medieval period, roughly 1000 C.E, to the present day. Beginning with the idea of environmental history and its broad themes, including climate, volcanic eruptions, landscape, plants, crops, animals, insects, disease, pestilence, energy, and technology, the course will enable students not only to understand the complex relationship between human societies and non-human species but also the changing nature and structure of this relationship throughout history.

HIST 1365. Global Tourism and the Environment from the late 18th Century to the Present. (ENV,HIS; 3 cr. ; Student Option; Every Fall)
This course focuses on tourism and travel. Spanning the period from the late 18th century to the present, it examines the ways in which these phenomena impact how we live, work, interact with our natural environment and other people, and conceive of the world and global forces

HIST 1411W. The Family from 10,000 BCE to the Present. (CIV,WI,HIS; 4 cr. ; Student Option; Every Fall)
How family life, has played and continues to play a major role in world history. Lectures, labs, assignments. prereq: Fr or soph or fewer than 60 cr

HIST 1534. Introduction to Jewish History and Cultures. (HIS; 3 cr. ; Student Option; Every Fall)
This course traces the development of Judaism and Jewish civilizations from their beginnings to the present. With over three millennia as its subject, the course must of necessity be a general survey. Together we will explore the mythic structures, significant documents, historical experiences, narratives, practices, beliefs, and worldviews of the Jewish people. The course begins by examining the roots of Judaism in the Hebrew Bible and the history of ancient Israel but quickly focuses on the creative forces that developed within

Judaism as a national narrative confronted the forces of history, especially in the forms of the Persian, Greek, and Roman empires. Rabbinic Judaism becomes the most dominant creative force and will receive our greatest attention, both in its formative years and as it encounters the rise of Christianity and Islam. After studying the Jewish experience in the medieval world, we will turn to Judaism? s encounter with the enlightenment and modernity. The historical survey concludes by attending to the transformations within Judaism and Jewish life of the last 150 years, including a confrontation with the experience of the Holocaust. Woven throughout this historical survey will be repeated engagements with core questions: ?Who is a Jew?? ?What do Jews believe?? ?What do Jews do?? ?What do we mean by ?religion??? ?How do Jews read texts within their tradition?? And perhaps most importantly, ?How many answers are there to a Jewish question?? Students in this course can expect to come away with some knowledge of the Bible in Judaism, rabbinic literature and law, Jewish mysticism and philosophy, Jewish nationalism and Zionism, Jewish culture, ritual, and worship in the synagogue, the home, and the community, and Jewish celebrations of life cycle events and the festivals.

HIST 1809. The Presidency: Power, Politics, and Policy in the United States. (3 cr. ; Student Option; Fall Even Year)
This course explores the emergence, meaning, and evolution of the American presidency. We will examine the nature of presidential power and ask how and why those powers have changed over time. We will explore the impact of politics and political parties on the American presidency. We will consider how presidents shape policy and analyze the relationship between power, politics, and policy.

HIST 1811. The Sixties: History & Memory. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
The Sixties was an incredibly dynamic decade in the United States and around the world. It was a decade of powerful social movements from the Civil Rights and Black, Brown, Yellow and Red Power movements to the countercultural, student/campus, anti-war, feminist, and environmental movements. It was also marked by the rise of a series of New Right movements from the rise of the Barry Goldwater to the election of Richard Nixon and the transformation of both the Democratic and Republican parties. Major immigration reform, transformations in the nation's educational and health care systems, along side new patterns of consumption and new forms of media were also products of the Sixties. From the Cold War to the Vietnam War, from anti-imperialism and anti-colonialism to third world revolutions, Americans transformed the world and the US was transformed by the world in the sixties. Fifty years removed from the sixties, the idea of the sixties remains alive in the American imagination. It remains alive and in tension with the new movements, like Black Lives Matters, and in political thought, as, for example, in Donald Trump's repeated invocation of the "silent majority." Students will explore a wealth of primary sources and be introduced to the dynamic historiography of the 1960s. As a class, we will also consider how the sixties continues to serve as a powerful trope that organizes political and social thought in the 21st century.

HIST 1842. The Digital Revolution: Computers in the Making of the Contemporary World. (3 cr. ; Student Option; Periodic Fall & Spring)
Historical examination of birth of computer. Global transformations after 1945. History of technology/how technology transforms cultural life. United States history integrated with global history to show how technology, capitalism, politics, culture, environment, conspired to make computer an agent of revolutionary change.

HIST 1921. Brexit and Decolonization: Empire, Race, and Belonging in the 21st Century. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Among recent political moments, Brexit stands as one of the most confusing. From the shock vote in 2016 through the fall of two Prime Ministers and two general elections, Brexit has proven to be a paralyzing development in Britain, and a car-crash spectacle for the rest of the world. In this seminar, we will work to understand Brexit not as a single event but as a part of the century-long process of decolonization. In 1900 Britain was the most powerful and important global force, claiming a quarter of the world?s land and population. By 2016, Britain was again reduced to a small island nation, more defined by its relationship to the US and Europe than its own power and importance. We will read through the history and theory of decolonization. This will lead to an understanding of how the breakup of the empire came to define contemporary Britain, and how Brexit is the culmination of that process. We will learn how to use empire, race, and nation as ways to critically read current events.

HIST 1923. The Politics of Hunger: Food Security, Aid & Diplomacy. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This seminar is about American food aid programs, diplomacy, geopolitics, and global food movements. We cover the Cold War period and the contemporary world and examine issues such as what is global food security, how food diplomacy has developed, and why famines occur. The final project is to create a digital storytelling site based on student research; no prior experience or knowledge required as we learn how to make such a site together.

HIST 3000. New Topics in History. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Courses on new topics in history, historical topics related to current events, and other special subjects. Contact the History department for current listings.

HIST 3001. Public History. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Interpretations of collective past as produced in public venues, including museum exhibitions, films, theme parks, websites. Intellectual and political issues in history produced for public audiences. Career opportunities. prereq: instr consent

HIST 3011. Measuring the Past: Quantitative Methods for Historical Research. (MATH; 4 cr. ; Student Option; Periodic Fall & Spring)
Basics of quantitative historical data collection, measurement, analysis.

HIST 3020. Hands-On History. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Tired of textbooks? Investigate the past directly and develop the ability to answer your own questions. Gain hands-on experience researching, analyzing, and presenting the past using archives, interviews, online research, visual and textual analysis, etc. Explore presentation through essays, websites, films, exhibits, and more.

HIST 3021. Hands-On History: Global Apartheid. (3 cr. ; A-F only; Periodic Fall & Spring)
The years 1989 and 1990 saw the fall of the Berlin Wall and the release of Nelson Mandela from prison, respectively. These events are emblematic of a changing world order which saw the dismantling of apartheid even as racialized separation, oppression, and exploitation went global. In a world increasingly characterized by separations and divisions (made visible in the proliferation of physical walls and the hardening of borders) between rich and poor, between the privileged and the disenfranchised, between those whose lives matter and those who are understood to be entirely expendable, this course asks students to think about historical constructions of difference (such as race and gender), and about the past and History in relationship to the challenges of the present and towards a future yet to come. This course will introduce history majors to the methods and practices of historical knowledge production and to the philosophy of history. While attending to the work of history, and historiography, this course will also ask what history is for and what the historian does in research (as the detective and the archivist), in writing (as the storyteller and the analyst), and in (critical) thought (as the teacher and the philosopher).

HIST 3022. Hands-On History: The 1960s: A Decade of Change. (3 cr. ; A-F only; Periodic Fall & Spring)
The 1960s was a decade of hope, fear and incredible change. These years witnessed the rise of race, youth, gender, and anti-war movements in the wake of a hot Cold War and a series of anticolonial revolutions. The course offers students a deep introduction to this fascinating decade in US history. This methods and skills course also fulfills a departmental requirement for all History majors. Through the study of the 1960s, students will be introduced to the methods and skills historians have used to write this history. This course also offers students an opportunity to think deeply about the purpose, meaning, significance, and work of history. Students will leave this course with a deeper understanding of a significant moment in US history and a fuller understanding of the exciting and powerful work of history.

HIST 3051. Ancient Civilization: Near East and Egypt. (HIS; 3-4 cr. ; Student Option; Periodic Fall)
A broad survey of ancient Near Eastern and Egyptian history and culture from the prehistoric to the rise of Persia around 550 B.C.

HIST 3052. Ancient Civilization: Greece. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
A broad survey of ancient Greek culture and history from the third millennium B.C. to the death of Alexander the Great in 323 B.C.

HIST 3053. Ancient Civilization: Rome. (HIS; 3 cr. ; Student Option; Every Spring & Summer)
A broad survey of the culture and history of Rome from its origins to the decline and fall of the Roman Empire in the third and fourth centuries A.D.

HIST 3061. "Bread and Circuses": Spectacles and Mass Culture in Antiquity. (CIV,HIS; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Development of large-scale public entertainments in ancient Mediterranean world, from athletic contests of Olympia and dramatic festivals of Athens to chariot races and gladiatorial games of Roman Empire. Wider significance of these spectacles in their impact on political, social, and economic life of the societies that supported them.

HIST 3066. Prehistoric Pathways to World Civilization. (HIS; 3 cr. ; Student Option; Every Spring)
How did complex urban societies first develop? This course addresses this question in ten regions of the world, including Maya Mesoamerica, Inca South America, Sumerian Near East, Shang Civilization in East Asia and early Greece and Rome.

HIST 3067W. Archaeology of Prehistoric Europe. (HIS,WI; 3 cr. ; Student Option; Every Fall)
How archaeologists analyze/interpret artifacts to develop knowledge about formation of European society, from earliest evidence of human occupation to Roman period.

HIST 3081W. Martyrs, Monks, Crusaders: World Christianity, 100-1400. (GP,WI,HIS; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
This course surveys the history of Christianity from its status as a persecuted minority religion of the Roman Empire to its dominant role in medieval Europe and Byzantium. We study Christian traditions in Asia and Africa as well as Europe with special attention to the relationship between Christianity and culture in the ancient and medieval world.

HIST 3082. History of Christianity II: From the Middle Ages to the Enlightenment. (3 cr. ; Student Option; Spring Odd Year)
The course examines the history of Christianity from the 13th century to the end of the 18th century. It begins with the Latin church at the height of its power before moving on to a consideration of the disastrous 14th century, the revolts of the 15th and the Reformations of the 16th centuries. The course closes by considering new challenges facing the church in an age of Enlightenment and Revolution.

HIST 3092. Jesus in History. (HIS; 3 cr. ; Student Option; Every Spring)
Who was Jesus? While there has been some basic consistency in the depictions of Jesus throughout history, there has also been lots of variety. We will explore a whole host of portraits of Jesus at different points in history to demonstrate not only the varying ways that Jesus has been thought of but also to understand the relationship between these portraits and the historical and cultural contexts in which they were created. We will look at the gospels of the New Testament and some from outside the New Testament. We will look at ancient and medieval art. And we will look at modern film. Although we might not get to the bottom of who Jesus was, we might understand more fully how communities throughout history have thought about him. Intended as a course of interest to undergraduates in all colleges of the TC campus. Students of any, all, or no religious background are welcome.

HIST 3101. Introduction to Medieval History. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Europe from decline of Rome to early Renaissance. Politics, institutions, society, economy, and culture of Middle Ages.

HIST 3102. Medieval Tales and their Modern Echoes. (GP,LITR; 3 cr. ; Student Option; Every Spring)
Knights of Round Table, dragon-slayers, magic djinn, pilgrims in Hell. How stories have been retold in modern fiction, film, arts. Texts from Europe/other regions of globe.

HIST 3151W. British History to the 17th Century. (GP,WI,HIS; 4 cr. ; Student Option; Every Fall)
The making of the English nation: Anglo-Saxons and Normans; development of English law and Parliament; Reformation and constitutional crisis; early Wales, Scotland, and Ireland.

HIST 3152. British History From the Seventeenth Century. (GP,HIS; 3 cr. ; Student Option; Every Spring)
Civil War, Revolution, and constitutional settlement. Industrialization and growth of democracy. Rise/decline of British Empire.

HIST 3211. History of Sexuality in Europe. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
History of sexuality in Europe, from ancient Greece to present. Plato's philosophy of love, St. Augustine's conception of sin, prostitution in 15th century, sexual science of Enlightenment. Industrial revolution and homosexual subcultures. Rape scares and imperialism. Eugenics and Nazi Germany.

HIST 3212. Dissident Sexualities in U.S. History. (3 cr. ; A-F or Audit; Every Fall)
History of sexuality in United States. Emphasizes sexualities that have challenged dominant social/cultural norms. Development of transgender, bisexual, lesbian, gay identities/ communities. Politics of sex across lines of race/ethnicity. Historical debates over controversial practices, including sex work.

HIST 3244. History of Eastern Europe. (GP,HIS; 3 cr. ; Student Option; Spring Odd Year)
History of the peoples of the region from their origins to modern times, culture and society in the Middle Ages; Golden Age of Eastern Europe; loss of independence; nationalism and formation of national states; fascism and World War II, Jews in Eastern Europe; communist and post-communist periods.

HIST 3264. Imperial Russia: Formation and Expansion of the Russian Empire in the 18th and 19th Centuries. (3 cr. ; Student Option; Every Fall)
Interaction with Europe/Asia. Attempts at modernization/ reform. Emancipation of serfs/ rise of revolutionary movements.

HIST 3265. 20th-Century Russia: The Collapse of Imperial Russia, the Revolutions, and the Soviet Regime. (3 cr. ; Student Option; Every Spring)
Analysis of factors that led to collapse of tsarist regime. 1917 revolution. Evolution of Soviet regime/collapse of Soviet communism. Emphasis on role of nationalities/rise of Commonwealth of independent states.

HIST 3271. The Viking World: Story, History, and Archaeology. (; 3 cr. ; Student Option;)
Viking society and expansion of Viking influence abroad. Viking impact on Western Europe; interactions with Slavic lands; settlement of North Atlantic islands; and Western Europe's impact on Scandinavian lands. Analyzes archaeological, historical, linguistic, and numismatic evidence.

HIST 3281. European Intellectual History: The Early Modern Period, Antiquity to 1750. (3 cr. ; Student Option; Periodic Fall)
First of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/ scientific thought, its relation to thinking about the individual and the community. Readings from original sources.

HIST 3282. European Intellectual History: The Modern Period, 1750-Present. (3 cr. ; Student Option; Periodic Spring)
Second of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/ scientific thought, its relation to thinking about the individual and the community. Readings are from original sources.

HIST 3283. Marx, Capital, and History: An Introduction to Marxist Theory and History. (3 cr. ; Student Option; Spring Even Year)
Explore Marx's understanding of capitalism/its history. Marx's argument regarding historical specificity of capitalism as economic/social condition.

HIST 3284W. History through Memoir. (HIS,WI; 3 cr. ; A-F only; Every Fall)
Memoirs--non-fictional life stories--offer an intriguing lens into the past. Memoirs vividly portray a person's experiences, but they also raise questions about the reliability of the narrator. What kinds of histories are memoirs? We will read memoirs about experiences of

race, class, gender in America. Students write their own short memoir.

HIST 3285. Magic and Medicine. (3 cr. ; Student Option; Spring Odd Year)
Course examines how the line between magic and medicine has changed over time. From accusations of witchcraft to proclamations of scientific breakthrough, we will examine the relationship between the supernatural and the natural from the early modern period to today. Specific topics include the practice of exorcism, the concept of the "four humors,"? the persecution of witches, the development of "voodoo,"? the effectiveness of placebos, and the professionalization of medicine. Throughout, we will ask how gender, class, and race have affected the construction of "magic" and "medicine."

HIST 3286. Galileo and the Beginnings of Modern Science. (3 cr. ; A-F or Audit; Periodic Fall)
The life and work of Galileo Galilei (1564-1642), often called the "founder of modern science." Topics: the Renaissance Italian context for Galileo's work; the arrangements of authoritative knowledge that prevailed in 16th-century Tuscany and Venice, the role that universities, the Catholic church, learned academies, and the state played in disciplining knowledge. We consider the episodes of Galileo's career and read his seminal texts with secondary commentaries upon them. Topics: his telescopic observations of 1609-10; his battles with Aristotelian natural philosophy; his experiments and arguments on behalf of experimental and mathematical physics; his defense of Copernican "heliocentric" cosmology and his trial and condemnation by the Roman Catholic Church for heresy; and his work in mathematics and mathematical physics that paved the way for Newton and Einstein. The goal will be to understand the achievements of Galileo in their specific historical and cultural context and to use these reflections for thinking about the nature of the modern science that he helped to initiate.

HIST 3347. Women in Early America: 1600-1890. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Varied experiences of American women 1600-1900. Topics include women's involvement in dispossession of native peoples, westward expansion, slavery, industrialization, reform, revolution, transformations in family life/ sexuality.

HIST 3348. Women in Modern America. (; 3-4 cr. ; Student Option; Every Spring)
History of women in the United States from 1890 to the present. Explores women's changing roles in politics, the labor force, the family, and popular culture.

HIST 3349. U.S. Women's Legal History. (DSJ,HIS; 3 cr. ; A-F or Audit; Fall Odd Year)
Women's legal status, from colonial era through 20th century. Women's citizenship, civil rights. Marriage, divorce, and child custody. Reproductive/physical autonomy/integrity. Economic/educational equality. prereq: Soph or jr or sr

HIST 3361W. World War I: A Global History. (HIS,WI,TS; 3 cr. ; A-F only; Every Fall)
This class takes a global approach to the examination of the causes and consequences of World War I. We will look at how the war unfolded in Europe, Africa, and the Middle East. We will also explore the war's impact on North America and Australasia, areas drawn into the conflict because of their unique relationships with Britain and France. We will consider the special role played by the U.S. in restoring world peace and analyze the lasting social and political cleavages occasioned by the war. We will get at the heart of how the war was fought and how it is remembered for all of its triumphs and tragedies.

HIST 3362. Global History of World War II. (HIS; 3 cr. ; Student Option; Every Spring)
This course examines 1) how different countries remember World War II and how memories of the war have been shaped by domestic and international contexts of each country, and 2) how WWII changed the world in areas of human rights, the government-society relations, and ethical use of science and technology. Various faculty members with different geographical and thematic expertise come to the class as guest lecturers throughout the semester.

HIST 3363. Global History of the Cold War. (3 cr. ; A-F or Audit; Fall Even Year)
This course examines the origins, unfolding, and end of the Cold War, with emphasis on both geopolitical conflict and its social and cultural expressions. It begins with an examination of the ideological tensions between the USSR and USA and then turns to the end of European hegemony and de-colonization across Asia and Africa. It examines the expansion of the American empire and the appearance of new communist nations in Asia, Africa, and Latin America. While we will spend time on wars, insurgencies, and alliances, we will also examine how competing blocs and their members bound themselves through trade and economic interdependencies and how they represented themselves, their ideals, and the cold war itself in the sports, music, literature and film. The course ends with the collapse of the Soviet Union and a survey of Cold War traces in the fields of geopolitics and culture.

HIST 3401V. Honors Early Latin America to 1825. (GP,WI,HIS; 4 cr. ; A-F only; Every Fall & Spring)
Societies of Americas, Spain, and Portugal before contact. Interactions among Native Americans, African slaves, and Europeans, from colonization through independence. Religion, resistance, labor, gender, race. Primary sources, historical scholarship.

HIST 3401W. Early Latin America to 1825. (GP,WI,HIS; 4 cr. ; A-F or Audit; Every Fall & Spring)
Societies of Americas, Spain, and Portugal before contact. Interactions among Native Americans, African slaves, and Europeans, from colonization through independence. Religion, resistance, labor, gender, race. Primary sources, historical scholarship.

HIST 3402W. Modern Latin America 1825 to Present. (GP,WI,HIS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
National and contemporary period 1825 to present, with emphasis on social, cultural, political, and economic change.

HIST 3411W. The Family from 10,000 BCE to the Present. (CIV,WI,HIS; 4 cr. ; Student Option; Every Fall)
How family life has played and continues to play a major role in world history. Lectures, labs, assignments. prereq: Jr or sr or at least 60 cr

HIST 3412. Soccer: Around the World with the Beautiful Game. (CIV,HIS; 3 cr. ; Student Option; Spring Odd Year)
How did a kicking game played in a few English schools in the mid-nineteenth century go on to become the most popular organized pastime the world has ever known? In this class, we chart soccer's unlikely rise to global prominence and explore what it can tell us about people, games, and ethics all around the world today.

HIST 3413. War in History: Preparing and Making War in World History. (HIS; 3 cr. ; Student Option; Every Fall)
War has been a standard tool for organizing societies, settling disputes, and securing resources. The means and meaning of war have changed in important ways over time and we see very different historical outcomes across different societies. This course exams differences in war making across many societies in Europe, Asia, the Americas, and Africa from 10,000 BC to now.

HIST 3414. Conquest and Conversion: Religion & Empire 1500-1900. (3 cr. ; Student Option; Spring Odd Year)
Christian evangelism functioned as major justification for European expansion/ imperialism. How interactions between missionaries/non-European "converts" wrought social, political, religious transformations in early modern world.

HIST 3415. Migrations in Modern Global History. (GP,HIS; 3 cr. ; Student Option; Every Fall)
Today?s debates about immigration in historical/comparative perspective. Major migrations into, within, and out of Americas over 500 years. Lives/identities of U.S. immigrants compared with foreigners living/ working in Latin America, Europe, and Asia. Words/voices of migrants.

HIST 3416. Imperialism and its Critics: Ethical Issues, Literary Representations. (CIV,LITR; 3 cr. ; A-F only; Fall Even Year)
Significant episodes of several imperial nations to underscore themes of ethics/literature.

HIST 3417W. Food in History. (ENV,WI,HIS; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Significance of food in society, from earliest times to present. Why we eat what we eat. How foods have been "globalized." Dietary effects of industrial modernity. Material culture, social beliefs. Examples from around world.

HIST 3418. Drink in History. (HIS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Significance of alcohol and stimulating beverages. Interdisciplinary study of alcohol/ prohibition regimes throughout history.

HIST 3419. History of Capitalism: Uneven Development Since 1500. (3 cr. ; Student Option; Periodic Fall & Spring)
Causes of economic inequities in contemporary world. Long-term economic developments in cases taken from Africa, Asia, Europe, and North/South America. Various theoretical approaches to study of economic development. Introduction to key concepts.

HIST 3423. Central American Revolutions. (; 3 cr. ; Student Option; Periodic Fall)
Social, political and economic issues that have shaped Central American history for nearly two centuries. Focuses on influences of colonial histories, capitalist development, ethnic/racial conflict, foreign intervention, Catholic Church, civil war throughout region. Readings cover events in Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama.

HIST 3424. Women and Gender in Latin American History. (GP,HIS; 3 cr. ; Student Option; Spring Odd Year)
Changing gender norms in Latin America over time as compared with lives of women and men of diverse classes and ethnic groups. How women responded to their position in society, on a continuum from accommodation to resistance.

HIST 3425. History of Modern Mexico. (; 3 cr. ; Student Option; Every Fall & Summer)
Mexico from independence to the present: struggles for land, liberty, and equality; ethnicity, gender, and class; economic growth, nationalism, and globalization; urbanization, immigration, demographic transition.

HIST 3426. Piracy in the Mediterranean: The World of Merchants and Pirates. (GP,HIS; 3 cr. ; Student Option No Audit; Spring Odd Year)
This course will use the vehicle of piracy and privateering in the Mediterranean world to explore issues of cross-cultural interaction, global connections, and identity from earliest times when people took to the sea to the Middle Ages through the early modern era, 500-1800. Wherever there was trade, wherever there was movement on the seas, there was piracy. Recent scholarship on the Mediterranean has focused on connectivities, micro-environments, the uniqueness of islands, and various climatic spheres in a geographic tradition that follows the path-breaking work of Fernand Braudel. This course will consider the urban and rural dimensions of the Mediterranean region as they relate to the history of merchants and pirates. Finally, the political and military aspects of Mediterranean history will be examined. There was a continuum from piracy to privateering to war. Students should gain a deeper understanding of a region that continues to fascinate us today.

HIST 3429. Latin American History in Film and Text. (AH,GP; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Cinematic representations of Latin America in context of other historical/literary narratives. Experiences of Latinos in Hollywood. U.S. films compared with those produced in Latin America. Themes vary (e.g., women, revolution, colonialism).

HIST 3431. Early Africa and Its Global Connections. (GP,HIS; 3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Survey of African history from earliest times to 1800. Focuses on socioeconomic, political, and cultural development in pre-colonial Africa from ancient Egypt through the era of the trans-Atlantic slave trade.

HIST 3432. Modern Africa in a Changing World. (GP,HIS; 3-4 cr. ; Student Option; Every Fall, Spring & Summer)
Survey of modern African history from early 19th century to present. Focuses on socioeconomic, political, and cultural development in Africa, from abolition of trans-Atlantic slave trade through postcolonial era.

HIST 3435. History of South Africa from 1910. (; 3 cr. ; Student Option; Periodic Fall)
History of South Africa from union to present. Focuses on issues such as African/Afrikaner nationalism, structures of apartheid, forced population removals, divestment/sanctions, and post-apartheid era.

HIST 3436. Contemporary African Conflicts: From Somalia to South Africa. (3 cr. ; Student Option; Periodic Fall)
Historical contexts in which specific contemporary political conflicts developed. Slave trade, colonial conquest, indirect rule, forced labor, discretionary justice, other historical issues. Patterns of human rights violations/ socio-political conflict. Cases studies might include Somalia, Democratic Republic of Congo, Rwanda.

HIST 3444. Chicana and Chicano History I. (DSJ,HIS; 3 cr. ; Student Option; Every Fall)
Experiences of people of Mexican descent in the United States. Important eras in histories of Mexico, the United States, and Mexican Americans. Central role of Chicana/os in U.S. history, culture, and politics. Topics include race, ethnicity, gender, sexuality, immigration, migration.

HIST 3446. Chicana and Chicano History II: WWII, El Movimiento, and the New Millennium. (DSJ,HIS; 3 cr. ; Student Option; Every Spring)
Experiences of people of Mexican descent in U.S. Notions of citizenship from WWII. Chicano civil rights movement. Impact of immigration patterns/legislation. Cultural wars, demographics. Social, economic, political changes. Meaning of racialized "Mexican" identity. How different groups of Mexicans have understood their relationships to other Americans/other Latino groups.

HIST 3454. West African History: Early Times to 1800. (GP; 3 cr. ; Student Option; Every Fall)
West Africa from late early times to establishment/histories of states. Relations with North African, Mediterranean, Asian, American worlds. Non-centralized political authority.

HIST 3455. West African History: 1800 to Present. (GP; 3 cr. ; Student Option; Every Spring)
West African history from late-18th century to present. Themes include study of continuities with past. Profound changes including new 19th century state formation, European colonialism, post-colonial issues.

HIST 3456. Social and Intellectual Movements in the African Diaspora. (GP,HIS; 3 cr. ; Student Option; Every Fall)
Political, cultural, historical linkages between Africans, African-Americans, African-Caribbeans. Socio-political movements/ radical intellectual trends in late 19th/20th centuries within African Diaspora. Resistance in Suriname, Guyana, Caribbean. Protest organizations, intellectual discourses, radical movements in United States/Europe.

HIST 3461. Introduction to East Asia I: The Imperial Age. (; 3-4 cr. ; Student Option; Every Fall)
Comparative survey of early history of China, Japan, Korea, and Vietnam. Early Chinese thought. Diffusion of Confucianism, Buddhism, and other values throughout East Asia. Political and social history of region to 1600.

HIST 3462. From Subjects to Citizens: The History of East Asia From 1500 to the Present. (GP,HIS; 3-4 cr. ; Student Option; Every Spring)
How Asian states, societies, economies, and cultures linked with one another and with European powers. How period's historical effects still resonate. Covers India, China, Japan, Korea, and Indochina.

HIST 3462H. Honors: From Subjects to Citizens: The History of East Asia from 1500 to the Present. (GP,HIS; 3-4 cr. ; A-F only; Every Spring)
How Asian states, societies, economies, cultures linked with one another/European powers. Historical effects. Covers India, China, Japan, Korea, Indochina.

HIST 3466. Religion and Society in Imperial China. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
Varieties of religious experience in imperial China. Religion as lived practices. Textual traditions. Buddhism, Daoism, Confucianism, relations among them. Western missionary enterprise in China.

HIST 3468. Social Change in Modern China. (; 3 cr. ; Student Option; Every Fall)
Opium War and opening of Treaty Ports in 19th century. Missionary activity and cultural influence. Changes in education system. Women's movement. Early industrialization. Socialism/collectivization after 1949. Industrialization of Taiwan. PRC's entry into world trading system.

HIST 3469. History of Women and Family in China, 1600-2000. (3 cr. ; Student Option; Fall Even, Spring Odd Year)
Marriage/family life, foot binding, cult of women's chastity. Women in nationalist/ communist revolutions. Gender relations in post-socialist China. Effect of ideologies (Confucianism, nationalism, socialism) on

women/family life. Differences between ideology/social practice.

HIST 3471. Modern Japan, Meiji to the Present (1868-2000). (HIS; 3 cr. ; Student Option; Every Fall & Spring)
Japan's early development as industrial/ imperial power after Meiji Restoration of 1868. Political developments in Taisho years: social, cultural, economic trends that supported them. Militarization/mobilization for war in 1930s. Japan's war with China, Pacific War with the United States. American Occupation. Postwar economic recovery, high growth. Changing political/popular culture of 1980s, '90s.

HIST 3476. War and Peace in Japan Through Popular Culture. (; 4 cr. ; A-F or Audit; Periodic Fall & Spring)
War-related issues in Japan. Animation films, comics from 1940s to 1990s. Mobilization of culture for WWII. Conflict between constitutional pacifism and national security. Japan's role in cold war and post-cold war worlds.

HIST 3477. Samurai, Geisha, and How They Became Japanese. (3 cr. ; A-F or Audit; Periodic Spring)
How samurai, geisha, and Zen Buddhism came to be considered as the quintessential Japanese tradition in 20th century. Modernity, nationalism, orientalism, international politics, globalization.

HIST 3478. Tigers and Dragons: The Rise of the East Asian Economies, 1930-Present. (3 cr. ; Student Option; Spring Odd Year)
Rise of East Asian Economies, 1930-Present.

HIST 3479. History of Chinese Cities and Urban Life. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduction to traditional Chinese cities, their modern transformation. Ideal city plan in Confucian classics compared with physical layout of some major cities. Models about Chinese cities, influence of the models on our understanding of Chinese history/society.

HIST 3483. Hmong History Across the Globe. (; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Hmong interaction with lowland Southeast Asian states (Laos, Vietnam) and Western colonial powers (French, American) since 19th century. Changes to religious, social, political, and gender institutions. Aspirations for political autonomy.

HIST 3485. History of Southeast Asia. (GP; 3 cr. ; A-F or Audit; Every Fall & Spring)
Origins of civilization/indigenous states. impact of world religions and Western colonialism on gender, social, political, and economic structures. Nationalism. Establishment of Vietnam, Thailand, Indonesia, and the Philippines.

HIST 3486. Hmong Refugees from the Secret War: Becoming Americans. (3 cr. ; Student Option; Spring Odd Year)
Socio-economic, political, gender, cultural/ religious changes in Hmong American community during last three decades. How Hmong are racialized in American society. Impact to first/second generations.

HIST 3487. The Vietnam Wars: French Colonialism and U.S. Intervention in Indochina. (3 cr. ; Student Option; Fall Odd, Spring Even Year)
French conquest. Colonial bureaucratic/ economic transformations. Nationalist responses. First Indochina War. Emergence of nation-state. U.S. intervention. Impact of Vietnam War on current politics of Laos, Cambodia, and Thailand, and on Southeast Asia.

HIST 3489. 20th Century India. (3 cr. ; A-F or Audit; Periodic Fall)
India under British hegemony in 1914 through Mahatma Gandhi and his nationalist movement; World War II; the British departure; creation of India and Pakistan; Nehru; Indira and Rajiv Gandhi.

HIST 3492. Hinduism. (3 cr. ; Student Option; Periodic Fall & Spring)
Development of Hinduism focusing on sectarian trends, modern religious practices, myths/rituals, pilgrimage patterns/ religious festivals. Interrelationship between Indian social structure/Hinduism.

HIST 3493. Islam: Religion and Culture. (; 3 cr. ; Student Option; Every Fall)
This course is a brief survey of the religion and civilization of Islam. It introduces students to 1) Islamic history from its inception in the seventh century CE to the present, with emphasis on the life of the Prophet Muhammad and the early Caliphate; 2) The authoritative texts of Islam, i.e. the Quran and Prophetic traditions (Hadith); 3) The institutions and discourses characteristic of Islamic civilization; and 4) The transformation of Muslim life and thought in the modern period. By taking this course, students become familiar with the chief ideas, characters, narratives, rites, localities, and movements associated with Islam. prereq: Soph or jr or sr

HIST 3494W. Christ in Islamic Thought. (WI; 3 cr. ; Student Option; Periodic Spring)
Course examines the history of the figure of Christ in Islamic thought, from the beginnings of Islam in the Qur'an and the Hadith to the recent 2013 book by Reza Aslan, Zealot. The course is based on close reading of primary sources from regions extending from Spain to Iran, and in various languages (in translation): Arabic, Greek, French, Farsi, and Italian. Course demonstrates how much the interpretation of the figure of Christ in Islamic thought belonged to specific historical contexts. prereq: None

HIST 3502. Ancient Israel: From Conquest to Exile. (; 3 cr. ; Student Option; Periodic Fall)
Israel and Judah were not states of great importance in the ancient Near East. Their population and territory were small, and they could not resist conquest by larger, more powerful states like Assyria and Rome. Yet their ancient history matters greatly today, out of proportion to its insignificance during the periods in which it transpired. The historical experiences of the people of Israel and Judah were accorded religious meaning and literary articulation in the Hebrew Bible (the Old Testament), which became a foundational text for Judaism, Christianity, and Islam. Essential features of Western as well as Islamic civilization are predicated on some element of Israel?s ancient past, as mediated through the Bible; therefore it behooves us to understand that past. But the Bible is a religious work, not a transcript of events, and the history of ancient Israel is not derived merely from reading the biblical accounts of it. Archaeological excavations have revealed the physical remains of the cultures of Israel and neighboring lands, as well as bringing to light inscriptions, documents, and literary works produced by those cultures. These sources, which complement and sometimes contradict the accounts conveyed in the Bible, provide the basis for reconstructing a comprehensive history of ancient Israel. This course covers the history of Israel and Judah from the Late Bronze Age (c. 1550-1200 BCE), by the end of which Israel had emerged as a distinct ethnic entity, to the period of Roman rule (63 BCE-330 CE), which saw the final extinction of ancient Israel, represented by the kingdom of Judea, as a political entity. Knowledge of this history is based on archaeological, epigraphic, and literary sources, including the Hebrew Bible. N.B.: Students should be aware that the study of history, like all the human and natural sciences, is predicated on inquiry, not a priori judgments. Accordingly, the Bible is not privileged as an intrinsically true or authoritative record. No text is presumed inerrant, and all sources are subject to scrutiny, in the context of scholarly discourse. Biblical texts are treated just like all other texts, as the products of human beings embedded in a historical context, and as the subject of analysis and interpretation. Persons of all faiths and of no faith are equally welcome to participate in such scholarly discourse. However, students who feel that their own religious beliefs require an understanding of the Bible that is antithetical to the foregoing statements are cautioned that they may find themselves uncomfortable with this course.

HIST 3504. The Cultures of the Silk Road. (3 cr. ; Student Option; Every Fall & Spring)
Past/present state of the cultures that flourished in Central Asia (present-day CA republics, Iran, Afghanistan) after Alexander the Great and declined with opening of sea routes.

HIST 3505. Survey of the Modern Middle East. (GP; 3 cr. ; Student Option; Every Fall)
Political history of Middle East in modern era. Socio-economic/intellectual issues. Decline of Ottoman Empire. Imperialism. Nationalism, rise/development of states. Political Islam.

HIST 3507. History of Modern Egypt. (; 3 cr. ; A-F only; Fall Odd, Spring Even Year)
Main political events. Underlying social, economic, and intellectual issues. Impact of Egypt on region. Developments in Egypt compared with those of other leading Arab states.

HIST 3509. Approaches to the Study of the Middle East. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)

Intensive reading/discussion course. Ways in which historians/social scientists have studied Middle East. Problems they have encountered. Paradigms, issues, and debates in Middle Eastern Studies.

HIST 3511. Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700. (GP,HIS; 3 cr. ; Student Option; Fall Odd Year)
Diversity of social/cultural interactions between Muslims and Jews and between Islam and Judaism since 1700. What enabled the two religious communities to peacefully coexist? What were causes of conflict? Why is history of Muslim-Jewish relations such a contested issue?

HIST 3512. History of Modern Israel/ Palestine: Society, Culture, and Politics. (GP; 3 cr. ; Student Option; Fall Odd Year)
History of Zionism/Israel. Arab-Jewish conflict, tensions between religious/secular Jews. Relationships between Mizrahi, Ashkenazi, Russian, Ethiopian, Arab citizens. Israeli cultural imagery. Newsreels, political posters, television shows, films, popular music.

HIST 3513. North Africa since 1500: Islam, Colonialism, and Independence. (3 cr. ; Student Option; Spring Odd Year)
History of Maghrib (Morocco, Algeria, Tunisia, Libya, disputed territories of Western Sahara) from time of Ottoman expansion/Sharifian dynasties (Sa'dian/'Alawid) in 16th/17th Centuries to end of 20th century. Focus on encounter of Islamic cultures/societies of Maghrib with Africa/Europe.

HIST 3514. Environmental History of the Middle East and North Africa. (3 cr. ; Student Option; Every Spring)
This course is designed to enable students to think critical about the role of the environment and climate in historical change in the Middle East and North Africa region. Through it, students will gain an appreciation of environmental history as a rich sub-discipline that raises important questions about world history, as well as engage in conceptual and historiographic debates about agency, social structure, culture and economics.

HIST 3534. Introduction to Jewish History and Cultures. (HIS; 3 cr. ; Student Option; Every Fall)
This course traces the development of Judaism and Jewish civilizations from their beginnings to the present. With over three millennia as its subject, the course must of necessity be a general survey. Together we will explore the mythic structures, significant documents, historical experiences, narratives, practices, beliefs, and worldviews of the Jewish people. The course begins by examining the roots of Judaism in the Hebrew Bible and the history of ancient Israel but quickly focuses on the creative forces that developed within Judaism as a national narrative confronted the forces of history, especially in the forms of the Persian, Greek, and Roman empires. Rabbinic Judaism becomes the most dominant creative force and will receive our greatest attention, both in its formative years and as it encounters the rise of Christianity and Islam. After studying the Jewish experience in the medieval world, we will turn to Judaism? s encounter with the enlightenment and modernity. The historical survey concludes by attending to the transformations within Judaism and Jewish life of the last 150 years, including a confrontation with the experience of the Holocaust. Woven throughout this historical survey will be repeated engagements with core questions: ?Who is a Jew?? ?What do Jews believe?? ?What do Jews do?? ?What do we mean by ?religion??? ?How do Jews read texts within their tradition?? And perhaps most importantly, ?How many answers are there to a Jewish question?? Students in this course can expect to come away with some knowledge of the Bible in Judaism, rabbinic literature and law, Jewish mysticism and philosophy, Jewish nationalism and Zionism, Jewish culture, ritual, and worship in the synagogue, the home, and the community, and Jewish celebrations of life cycle events and the festivals.

HIST 3546. Islam and the West. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Cultural/intellectual trends that have defined fundamental differences between Islam and the West. Development of historical, philosophical, and intellectual mindset of both spheres. Factors in tension, anxiety, and hatred between Muslim world and Europe and the United States.

HIST 3547. The Ottoman Empire. (GP,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Survey of Islam's most successful empire, from its founding circa 1300 to its demise in 1923. Lands, institutions, peoples, historical legacy.

HIST 3606. Christians, Muslims, and Jews in the Middle Ages. (GP,HIS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
A Pew Research survey of the global religious landscape in 2010 found 2.2 billion Christians (31.5% of the world?s population), 1.6 billion Muslims (23.2%), and 14 million Jews (.2%). In this class, we explore how the histories of these religious communities became deeply entangled in an age of diplomacy, trade, jihad, and crusade.

HIST 3609. Military History of Medieval Western Europe. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Concept and conduct of war in Western Europe in the Middle Ages and the relation between the military and society.

HIST 3611. Medieval Cities of Europe: 500-1500. (GP,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Evolution of Western European cities from the late Roman town to the early Renaissance city-state.

HIST 3613. History of the Crusades. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Crusading spirit in Europe. Results of classic medieval crusades ca 1095-1285. States established by crusaders in Near East. Internal European crusades. Chronological prolongation of crusading phenomenon.

HIST 3615W. Women in European History: 1500 to the Present. (GP,WI,HIS; 3 cr. ; Student Option; Periodic Spring)
History of women in Western Europe from early modern period to present. Changes crucial to women's lives. Family/kinship structure, control over property, organization of work, religious ideas/practices, education, politics, beliefs/ attitudes about female body.

HIST 3616. France in the Middle Ages. (3 cr. ; Student Option; Periodic Fall)
Politics, society, and culture in medieval France from the end of the Carolingians to the end of the Hundred Years War.

HIST 3617. Pagans, Christians, Barbarians: The World of Late Antiquity. (3 cr. ; A-F or Audit; Fall Odd Year)
Between classical and medieval, pagan and Christian, Roman and barbarian, the late antique world was a dynamic age. This course will focus on the Mediterranean region from the 2nd to the mid-7th century exploring such topics as the conversion of Constantine, the fall of Rome, barbarian invasions, the spread of Christianity, and the rise of Islam.

HIST 3618. The Dark Ages Illumined: Medieval Europe to 1050. (; 3 cr. ; Student Option;)
Origins of medieval Europe, Germanic and Viking invasions, feudalism, manorialism, Islam, the papacy, monarchies, intellectual developments.

HIST 3621. Creating the Modern World in Medieval Europe: The Renaissance, 1200-1600. (3 cr. ; Student Option; Periodic Fall)
Political/cultural history of city-states of northern/central Italy, 1200-1550. Emphasizes Florence/Venice. Readings include Dante, Machiavelli. prereq: Intro course in European history before 1500 recommended

HIST 3623W. The Age of Reformation. (WI; 3 cr. ; Student Option; Fall Even Year)
This course will examine the great religious convulsion that gripped Europe in the sixteenth and seventeenth centuries. Chronologically, however, we will begin in the late medieval period as we consider important changes that were occurring in European culture and society culminating with Europe's first Reformation, not in Germany but in Bohemia. Geographically, we begin with Europe but our scope eventually widens out to consider developments also in Asia and the Americas. We conclude by considering the relaxation of religious tensions in the late seventeenth century and concurrent growth of toleration and skepticism. Throughout the course we will consider religion as a dynamic that has had a broad impact on society affecting not only personal belief but also the politics, social patterns, and intellectual and cultural production of the early modern world.

HIST 3632. History of Germany; Reformation to Unification: 1500-1871. (; 3 cr. ; Student Option; Periodic Spring)
The Reformation era; warfare and demographic catastrophe of the early 1600s; life in town and country; absolutism; Baroque culture;

family life and its transformation; economic crisis; Revolution of 1848; the military path to unification.

HIST 3637. Modern Russia: From Peter the Great to the Present. (; 3 cr. ; Student Option; Every Fall)
Political, social, and cultural forces which have shaped modern Russia. Emphasis will be on modernization, attempts at reforms in the imperial and Soviet period, and the dissolution of empires.

HIST 3652. Early Modern Britain. (; 3 cr. ; Student Option; Periodic Fall & Spring)
British society/culture during early modern era, especially 16th and 17th centuries. May include themes related to political developments, economy/social structure, gender, religion, literature, or interaction with other world regions.

HIST 3681. Irish History. (; 3 cr. ; Student Option; Every Fall)
History of Ireland, primarily modern, with emphasis on politics and Anglo-Irish relations.

HIST 3691W. The British Empire. (WI; 3 cr. ; A-F or Audit;)
Gain/loss of colonies in Ireland, America, India, Africa. Development of racism, multicultural composition of British society, debates about economic motives for empire, resistance of colonized peoples to conquest/domination.

HIST 3704W. Daily Life in Europe: 1300-1800. (GP,WI,HIS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Living conditions and daily life in Europe before the Industrial Revolution. Topics include marriage and family, life at court, nobles, peasants, disease, farming, livestock-raising, urban life, the middle classes, manufacturing, trade, piracy, witchcraft, war, crime, and social deviance.

HIST 3706. Baroque Rome: Art and Politics in the Papal Capital. (HIS; 3 cr. ; Student Option; Fall Even Year)
Center of baroque culture--Rome--as city of spectacle and pageantry. Urban development. Major works in painting, sculpture, and architecture. Ecclesiastical/private patrons who transformed Rome into one of the world's great capitals.

HIST 3708. The Age of Curiosity: Art, Science & Technology in Europe, 1400-1800. (AH,TS; 3 cr. ; Student Option; Periodic Fall & Spring)
Diverse ways in which making of art and scientific knowledge intersected in early modern Europe. Connections between scientific curiosity and visual arts in major artists (e.g., da Vinci, Durer, Vermeer, Rembrandt). Artfulness of scientific imagery/ diagrams, geographical maps, cabinets of curiosities, and new visual technologies, such as the telescope and microscope.

HIST 3711. Cognitive History. (3 cr. ; Student Option; Periodic Spring)
Cognitive History will examine how research in cognitive neuroscience provides historians with new knowledge and methods for asking questions about the past. It is not a course on the history of the cognitive sciences. Instead, it is about practicing history in the cognitive age, a period that began more than fifty years ago, and an approach to explaining how humans think and act that has been adopted within fields across our universities. The course will combine broad readings and discussions in ? Big History? and the shift from behaviorism to cognition with more specific studies about memory, narrative, aesthetics, the body, and violence. Students will have an opportunity to apply a cognitive history approach to a specific topic that emphasizes one of the following topics: Evolution, Behaviorism, Cognitive Cultural Studies, Memory, Narrative, Aesthetics, the Body, and Violence. Students will help guide discussions for the relevant class sessions on these topics and write an essay on the selected theme.

HIST 3721. Studies in 20th-Century Europe From the Turn of the Century to the End of World War II: 1900-45. (; 3 cr. ; Student Option; Every Fall & Summer)
Social, political, and cultural changes/conflicts. Background to WWI, its impact. Revolution, failure of interwar stability. Fascism. WWII, its consequences.

HIST 3722. Studies in 20th-Century Europe From the End of World War II to the End of the Cold War: 1945-91. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Social, economic, political, and cultural impacts of WWII upon Europe. Division of Europe. Communist regimes in Eastern Europe, cooperation in Western Europe. Impacts of modernization. End of Cold War.

HIST 3727. History of the Holocaust. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Study of 1933-1945 extermination of six million Jews and others by Nazi Germany on basis of race. European anti-Semitism. Implications of social Darwinism and race theory. Perpetrators, victims, onlookers, resistance. Theological responses of Jews and Christians.

HIST 3728. Human Rights and Crimes Against Humanity. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Meaning of the term "genocide." Particular cases, such as Armenians in the late Ottoman Empire, Jews in the Third Reich, and Muslims in the former Yugoslavia.

HIST 3729. Nazi Germany and Hitler's Europe. (3 cr. ; Student Option; Periodic Fall & Spring)
Comprehensive exploration of Third Reich. Students will examine How the Nazis came to power, transformations of 1930s, imposition of racial politics against Jews/others, nature of total war. Students read historical accounts, memoirs, state documents, view films.

HIST 3731. Modern France and Its Empire: Identity, Citizenship and the State 1780 to the Present. (GP,HIS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
History of citizen/state in France from French Revolution to present.

HIST 3746. Game of Thrones: Emperors, Knights and Witches in Central Europe. (HIS; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
This course traces the rise and fortunes of the Habsburg family from their emergence in the late 13th century to the end of the Holy Roman Empire in 1806. We use the family to explore key themes of the period including the Black Death, Hussite wars and peasant revolts, the new print culture, developments of the Reformation, European expansion and Enlightenment culture. prereq: None

HIST 3767. Eastern Orthodoxy: History and Culture. (3 cr. ; Student Option;)
Development of the orthodox church in Byzantium, the Islamic Near East, the Slavic world and in the diaspora; impact of orthodoxy on political and cultural institutions, interaction with other Christian and non-Christian communities; orthodox spirituality and aesthetics.

HIST 3797. History of Population. (GP,SOCS; 3 cr. ; Student Option; Every Spring)
History of births, deaths, migration, population size, and population characteristics. Evidence from Europe, the United States, and Latin America with comparative material from Africa and Asia. Methods of historical population analysis and research of historical population data.

HIST 3802. "Sinners, Saints, and Savages": Religion in Early America. (3 cr. ; Student Option; Spring Odd Year)
Native American, Euro-American, and African American cosmologies. Perceptions of religious differences. Notions us/them, civility, and savagery. How religious beliefs shaped responses to colonization, enslavement, and revolution. prereq: Non-fr or instr consent

HIST 3804. Religion and the American Culture Wars. (HIS; 3 cr. ; Student Option; Every Fall)
Thomas Jefferson, Benjamin Franklin, James Madison, Thomas Paine, George Washington, and John Adams on religion, faith, and religion in politics. Deism. Enlightenment-era discussions about rational religion. Rise of evangelicalism. Separation of church/state, framers' original intent for first amendment. Religious Right.

HIST 3809. The Peoples of Revolutionary America. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Culture/structure of late colonial politics. Regionalism. Connections between society and politics. Imperial crisis and independence. Military history of the Revolution. Origins of national politics and the constitution.

HIST 3811. Manifest Destiny, Slavery, and the Politics of Expansion: Jacksonian America. (3 cr. ; Student Option; Spring Even Year)
This course examines the history of the U.S. between the War of 1812 and the outbreak of the Civil War in 1861. We will examine the dramatic expansion in population and territory, onset of transportation, communications, and the industrial revolutions, forced removal of Native Americans, slavery, reform efforts of the

1830s and 1840s, growth and maturation of political parties, and coming of the Civil War.

HIST 3812. The Civil War and Reconstruction. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
United States from 1848 to 1877. Causes of sectional crisis; Southern secession; Lincoln and emancipation; military history; impact of war North and South; Reconstruction efforts to change the Southern life and transform the status of African Americans.

HIST 3821. United States in the 20th Century to 1945. (HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
American politics and society in the progressive era, the 1920's, the Great Depression and World War II. Economic reform at home, the challenges of world war abroad, and social change affecting the status of women and racial minorities.

HIST 3822. Making America Modern: 1945 to Present. (3 cr. ; Student Option; Every Fall, Spring & Summer)
American politics and society in the postwar era, the diplomacy of the Cold War, the civil rights movement, the Vietnam War, cultural clashes in the 1960's, Watergate, the conservative resurgence, and the end of the Cold War.

HIST 3834. Law in American Life, Colonial Era to Civil War. (; 3 cr. ; A-F or Audit;)
Understandings of law/property held by colonists, Indians. Conceptions of relationships among family, community, state held in colonial America; conceptions held today. Law of slavery in colonial era. American Revolution/Constitution. Law, industrialization. Legal legitimacy, federalism, Civil War as constitutional crisis.

HIST 3835. Law in American Life: 1865 to Present. (; 3 cr. ; Student Option;)
Centralization of state power, rise of individual rights. Constitutionalization of American law. Passage, promise, abrogation, rediscovery of 13th, 14th, 15th Amendments. Expansion of federal administrative state. Origins of civil liberties. Law and the welfare state. Civil Rights Revolution of 1950s, '60s, '70s. Product liability law. Second half of two-semester survey. May be taken independently.

HIST 3838. Family History in America. (; 3 cr. ; Student Option; Every Spring)
How historians study families to explore race/class. Techniques for researching genealogy/family history. Research/write on history of family.

HIST 3842. The Digital Revolution: Computers in the Making of the Contemporary World. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Historical examination of birth of computer. Global transformations after 1945. History of technology/how culture shapes technological change. United States history integrated with global history to show how technology, capitalism, politics, culture, environment conspired to make computer agent of revolutionary change.

HIST 3852. Work and Workers in the United States. (DSJ,HIS; 3 cr. ; Student Option; Periodic Fall)
Why do Americans work, and what do we expect in exchange? This course explores how the answers to those questions have changed overtime, from the colonial era to the present, and how the past shapes our approach to work today.

HIST 3853. Black Protest in Twentieth Century America. (; 3 cr. ; A-F only; Periodic Fall, Spring & Summer)
This course gets at the heart of why/how African Americans have been fighting for social and political equality throughout the 20th Century. We explore various ways that African Americans have articulated their political demands and affirmed their citizenship rights using youth and grassroots organizations, workers' rights, feminism, education, the courts and laws as tools for political advancement.

HIST 3856. The Civil Rights and Black Power Movement, 1954-1984. (3 cr. ; Student Option; Every Fall)
Modern black civil rights struggle in U.S. Second reconstruction. Failure of reconstruction, abdication of black civil rights in 19th century. Assault on white supremacy via courts, state, grassroots southern movement in 1950s/1960s. Black struggle in north/west.

HIST 3862. American Immigration History. (DSJ,HIS; 3 cr. ; Student Option; Spring Odd Year)
Global migrations to U.S. from Europe, Asia, Latin America, and Africa, from early 19nth century to present. Causes/cultures of migration. Migrant communities, work, and families. Xenophobia, assimilation/integration, citizenship, ethnicity, race relations. Debates over immigration. Place of immigration in America's national identity.

HIST 3864. African American History: 1619-1865. (CIV,HIS; 3 cr. [max 4 cr.] ; A-F or Audit; Periodic Fall & Spring)
Importance of dynamics of class, gender, region, and political ideology. Changing nature of race/racism.

HIST 3865. African American History, 1865 to Present. (3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
History of African American men and women from the beginning of the 20th century to the present. Discussion of internal migrations, industrialization and unionization, The Great Depression, world wars, and large scale movements for social and political change.

HIST 3868W. Race, War, and Race Wars in American History. (CIV,WI; 3 cr. ; A-F or Audit; Fall Odd Year)
Role that race has played in American war history. Impact that wars have had on race and race relations in the United States and the world. Literature, film.

HIST 3871. American Indian History: Pre-Contact to 1830. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to American Indian history from ancient native America to the removal era. Focuses on the social, cultural, political, and economic diversity of Native American peoples and Native American experiences with European colonialism.

HIST 3872. American Indian History: 1830 to the Present. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Focus on the impact of federal Indian policy on American Indian cultures and societies, and on American Indian culture change.

HIST 3875W. Comparative Race and Ethnicity in US History. (DSJ,WI,HIS; 3 cr. [max 4 cr.] ; A-F or Audit; Periodic Fall & Spring)
This writing-intensive course examines the racial history of modern America to learn from and engage with what historians enmeshed in ethnic studies do. These historians examine the systematic and coordinated exercises of power called race in the American past and make legible how racially aggrieved groups responded to this shaping power. Thus, throughout, we ask, "What did racial subjects do with what was done to them by the American system forged out of settler colonialism, slavery, racism, and other forms of injustice, exclusion, and violence?" This question issues an intellectual challenge to do all that needs to be done to capture community life, the politics of difference, and the dynamism of social identities in all their richness, fullness, and complexity. In other words, we study and write about the racial history of modern America, including its ugly past and arc of justice, to consider what it would take to transcend this racial past.

HIST 3877. Asian American History, 1850-Present. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Asian American history and contemporary issues, from 1850 to the present. Immigration, labor, anti-Asian movements, women/families, impact of World War Two, new immigrant/refugee communities, civil rights, Asian American identity/culture.

HIST 3882. U.S. and the World. (3 cr. ; Student Option; Periodic Fall, Spring & Summer)
History of U.S. involvement in world affairs. Political, economic, social, cultural relations by individuals, groups, governmental, non-governmental agencies. Nation building, imperialism, hemispheric hegemony, cultural expansion, national security, wars.

HIST 3886. The Age of Atlantic Revolutions, 1765-1830. (; 3 cr. ; Student Option; Fall Even Year)
Thinking about the rebellions that rocked the Atlantic world during the late eighteenth and early nineteenth centuries, we will compare and contrast the diverse political, economic, and social elements surrounding the following conflicts: the American Revolution, the French Revolution, the Haitian Revolution, and the Latin American Wars of Independence.

HIST 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace

activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

HIST 3960. Topics in History. (; 1-4 cr. [max 16 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Selected history topics not covered in regular courses.

HIST 3980W. Supplemental Writing in History. (WI; 1 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
May be attached, by agreement of instructor and students, to any 3xxx or 5xxx course to make a writing-intensive experience. prereq: instr consent; must take a 3-cr 3xxx or 5xxx course taken concurrently

HIST 3993. Directed Study. (1-16 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Guided individual reading or study. Open to qualified students for one or more semesters. Prereq instr consent, dept consent, college consent.

HIST 3994. Directed Research. (1-16 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Qualified students work on a tutorial basis. Prereq instr consent, dept consent, college consent. prereq: instr consent, dept consent, college consent

HIST 4010V. Honors: Research Seminar. (WI; 4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Work closely with professors on in-depth investigations of historical topics. Guided instruction in issues, methods, sources. Topics vary. prereq: Jr or sr history major, honors, or instr consent

HIST 4010W. Research Seminar. (WI; 4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Work closely with professors on in-depth investigations of historical topics. Guided instruction in issues, methods, sources. Topics vary. prereq: Jr or Sr history major or instr consent

HIST 4961V. Honors: Major Paper. (WI; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Research paper on topic of student's choice. Work largely with primary sources. Faculty guidance. prereq: dept consent, instr consent; sign up in Undergraduate Studies Office two sem in advance

HIST 4961W. Major Paper. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Research paper on topic of student's choice. Work largely with primary sources. Faculty guidance. prereq: dept consent, instr consent; sign up in Undergraduate Studies Office two sem in advance

HIST 4970. History Day Mentorship. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall, Spring & Summer)
HIST 4970 is a course designed to engage students in local grades 6-12 education through the National History Day in Minnesota program. This class requires that students complete at least 100 hours of mentoring work in History Day schools in the Twin Cities. While the focus of these hours will be in the classroom, some hours may be fulfilled through participation in other History Day support services and/or assistance with events. In addition to their commitments to their assigned school, students must participate in regular seminar meetings, complete assigned course work, and fulfill final project requirements. Following the start of the class, students will have been assigned to a school, received preliminary History Day training, meet participating teacher(s), and develop a schedule for school visits. Most of all, this course is about connections. The University is looking for civic engagement opportunities through its ?Grand Challenges? curriculum that demonstrate the relevance of the institution and the contributions of its students to the citizens of the state. The College of Liberal Arts ?roadmap? also places specific emphasis on connecting its majors to the structures of education in Minnesota. Furthermore, the connections you make in applied learning situations (internships and/or service learning) can be a determining factor in shaping future career paths or graduate education. The History Day mentor program is a unique opportunity to apply your academic skills in a real-world educational environment. Your efforts will assist teachers on the frontlines of education, and you will help build pathways to higher education for inner-city students. The instructors appreciate the interest in service learning that has brought you to this course, and it is our hope that this opportunity proves to be a highlight of your undergraduate experience.

HIST 5011. Measuring the Past: Quantitative Methods for Historical Research. (4 cr. ; Student Option; Periodic Fall & Spring)
Basics of quantitative historical data collection, measurement, and analysis. prereq: Primarily for 1st-yr grad students

HIST 5053. Doing Roman History: Sources, Methods, and Trends. (; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Survey of major scholarship in field of Roman history since Mommsen. Political, cultural, social, military, and economic history. Focuses on methodological problems posed by evidence. Ways in which these issues shape research. prereq: Grad student or instr consent

HIST 5111. Proseminar in the History of Medieval Europe. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Examination of basic scholarly bibliography for medieval Western European history. Aim is to help students to prepare for M.A. and Ph.D. examinations. prereq: Advanced undergrads of exceptional ability or grads, instr consent

HIST 5115. Medieval Latin Historians. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Writing of history in Western Europe during the Middle Ages. Focus on idea of history, philosophy of various historians, techniques of research by medieval historians and chroniclers, history as literature, and value of medieval histories to modern research scholars. Latin texts only. prereq: Reading knowledge of Latin

HIST 5264. Imperial Russia: Formation and Expansion of the Russian Empire in the 18th and 19th Centuries. (3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Interaction with Europe and Asia; attempts at modernization and reform; emancipation of the serfs and rise of revolutionary movements.

HIST 5265. 20th-Century Russia: The Collapse of Imperial Russia, the Revolutions, and the Soviet Regime. (3 cr. ; Student Option; Every Spring)
Analysis of the factors that led to the collapse of the tsarist regime; discussion of the 1917 revolution, the evolution of the Soviet regime and the collapse of Soviet communism. Emphasis on the role of nationalities and the rise of the Commonwealth of independent states.

HIST 5271. The Viking World: Story, History, and Archaeology. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Viking society and expansion of Viking influence abroad. Viking impact on Western Europe, interactions with Slavic lands, settlement of North Atlantic islands, Western Europe's impact on Scandinavian lands. Analyzes archaeological, historical, linguistic, and numismatic evidence.

HIST 5281. European Intellectual History: The Early Modern Period, Antiquity to 1750. (3 cr. ; A-F or Audit; Periodic Fall)
First of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/scientific thought, its relation to thinking about the individual and the community. Readings from original sources. prereq: Grad student or instr consent

HIST 5282. European Intellectual History: The Modern Period,1750-Present. (3 cr. ; A-F or Audit; Periodic Spring)
Second of a two-semester course. European thought in its historical/cultural context. Emphasizes development of philosophical/scientific thought, its relation to thinking about the individual and the community. Readings are from original sources. prereq: Grad student or instr consent

HIST 5283. Marx, Capital and History: An Introduction to Marxist Theory and History. (3 cr. ; Student Option; Spring Even Year)
Explore Marx's understanding of capitalism and its history. Marx's argument regarding historical specificity of capitalism as economic/social condition

HIST 5286. Galileo and the Beginnings of Modern Science. (3 cr. ; A-F only; Periodic Fall)
The life and work of Galileo Galilei (1564-1642), often called the ?founder of

modern science.? Topics: the Renaissance Italian context for Galileo?s work; the arrangements of authoritative knowledge that prevailed in 16th-century Tuscany and Venice; the role that universities, the Catholic church, learned academies, and the state played in disciplining knowledge. We consider the episodes of Galileo?s career and read his seminal texts with secondary commentaries upon them. His telescopic observations of 1609-10; his battles with Aristotelian natural philosophy; his experiments and arguments on behalf of experimental and mathematical physics; his defense of Copernican ?heliocentric? cosmology and his trial and condemnation by the Roman Catholic Church for heresy; and his work in mathematics and mathematical physics that paved the way for Newton and Einstein. The goal will be to understand the achievements of Galileo in their specific historical and cultural context and to use these reflections for thinking about the nature of the modern science that he helped to initiate.

HIST 5295. Social History of Russia and Eastern Europe From the Late 19th Century to the Present. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Social movements (revolutionary, nationalist, women's); communist and post-communist societies.

HIST 5379. Problems in Early American History. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Intensive consideration of topics in early American history. Topics may include readings in race, class, and gender; comparative colonialism; slavery; demography; economic history; religion; and regions in the colonial world.

HIST 5381. Minnesota History Workshop. (; 3-4 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
A case study and seminar approach to historical research and interpretation. It offers teachers and other scholars a chance to survey a particular topic in Minnesota history and to write their own historical narrative based on primary source research. prereq: 1301, 1302

HIST 5439. Environment and Society in Africa. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Major historiographical, theoretical, and methodological debates concerning people-environment relations in Africa, from rise of human societies to present. Environment and the rise of civilizations. Demography, colonial environmental policies, conservation, disease, indigenous knowledge, water management, food. prereq: instr consent

HIST 5468. Social Change in Modern China. (; 3 cr. ; Student Option; Every Fall)
Opium War and opening of Treaty Ports in 19th century; missionary activity and cultural influence; changes in education system; women's movement; early industrialization; socialism and collectivization after 1949; industrialization of Taiwan; PRC's entry into the world trading system.

HIST 5469. Historiographies of China, 1000-1700. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Important recent English-language work on Chinese culture during the Song, Yuan, and Ming dynasties. Topics include religion, gender, family structures, ethnic identity, commerce/economics, and political structures/events. prereq: Grad student or instr consent

HIST 5478. Tigers and Dragons: The Rise of the East Asian Economies, 1930-Present. (3 cr. ; Student Option; Spring Odd Year)
Rise of East Asian Economies, 1930-Present. prereq: Grad student

HIST 5479. History of Chinese Cities and Urban Life. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduction to traditional Chinese cities, their modern transformation. Ideal city plan in Confucian classics compared with physical layout of some major cities. Models about Chinese cities, influence of the models on our understanding of Chinese history/society.

HIST 5513. North Africa since 1500: Islam, Colonialism, and Independence. (3 cr. ; Student Option; Spring Odd Year)
History of the Maghrib (Morocco, Algeria, Tunisia, Libya and disputed territories of Western Sahara from time of Ottoman expansion/Sharifian dynasties [Sa'dian/'Alawid]) in 16th/17th Centuries to end of 20th century. Focus on encounter of Islamic cultures/societies of Maghrib and Africa/Europe

HIST 5540. Topics in Mediterranean Studies. (; 1-4 cr. [max 15 cr.] ; A-F or Audit; Every Fall & Spring)
Mediterranean history, from Middle Ages to present. Taught as staffing permits. prereq: Grad student or advanced undergrad with instr consent

HIST 5547. Empire and Nations in the Middle East. (3 cr. ; Student Option; Periodic Fall & Spring)
Modernity in non-Western imperial context. Identity, ideology, economy, environment, language. prereq: Grad student or instr consent

HIST 5611. New Directions in the Middle Ages, ca. 300-1100. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Basic scholarly bibliography for medieval Western European history during early Middle Ages. Foundation for teaching courses in medieval history, preparing for general doctoral exam. prereq: Grad student or instr consent

HIST 5612. New Directions in the Middle Ages, ca. 1100-1500. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Basic scholarly bibliography for medieval Western European history during central/later Middle Ages. Foundation for teaching courses in medieval history, preparing for general doctoral exam. prereq: [5611, grad student] or instr consent

HIST 5614. The Medieval Church. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to history of western church in Middle Ages. Emphasizes church teachings and institutional structures, beliefs/practices of lay people, medieval Christian encounter with non-Christian world. prereq: Grad student or instr consent

HIST 5633. Socio-Economic History of China. (; 3 cr. ; A-F or Audit; Periodic Fall)
Nature of Chinese socio-political formations and economic development in Qing and Republican eras, 1644-1937. Establishment/methods of state rule, merchants, agrarian social structure, domestic industry, demographic regimes, capitalism, and imperialism. Comparisons using theoretical and case studies of economic development. prereq: Grad student or [adv undergrad, instr consent]

HIST 5640. Topics in Legal History. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Cmparative approaches to, methodologies of, and theoretical debates in legal history. Topics from ancient world to present, such as citizenship/statebuilding, religion and the law, women?s legal history.

HIST 5642. U.S. Legal History. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Topics in history of American law, legal thought, legal institutions, and legal profession. Proceeds thematically. Primary/secondary sources.

HIST 5648. Development of the Western European Legal Tradition. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Evolution of and interaction among Roman and civil law, customary/feudal law, canon law, and English common law. Primary/secondary sources in English.

HIST 5708. The Age of Curiosity: Art, Science & Technology in Europe, 1400-1800. (AH,TS; 3 cr. ; Student Option; Periodic Fall & Spring)
Diverse ways in which making of art and scientific knowledge intersected in early modern Europe. Connections between scientific curiosity and visual arts in major artists (e.g., da Vinci, Durer, Vermeer, Rembrandt). Artfulness of scientific imagery/diagrams, geographical maps, cabinets of curiosities, and new visual technologies, such as the telescope and microscope.

HIST 5715. Readings in European Women's History: 1450-1750. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduction to current historical research on European women's history, 1450-1750. Topics include gender roles and form of family structure, women's participation in religious movements, legal status of women.

HIST 5720. Society/Politics: Modern Europe. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Introduction to literature in English on problems of modern European social, cultural, political history. Thematic/geographic focus varies year to year. Topics include historical approaches to class/gender relations, state formation as social/political process, family history, evolution of public life, popular culture.

HIST 5735. European Women's History; 1750 to the Present. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)

Selected themes in modern European women's history. Forms of patriarchy. Women in the Enlightenment. Women and revolution. Gender, class, and family life. Women in the labor force. Sexuality and reproduction. Female education. Women's political movements. Women and imperialism. Gender and fascism. prereq: instr consent

HIST 5777. Proseminar in Habsburg Central Europe. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Central Europe under Habsburg rule from the reforms of Maria Theresa to imperial collapse. Continuity and change in society; economic and political modernization; the rise of national consciousness and anti-Semitism; politics and culture in the Fin de Siecle; the Empire and World War I. prereq: instr consent

HIST 5797. Methods of Population History. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Standard methods of population analysis. Focuses on methods widely used for historical population research.

HIST 5801. Seminar in Early American History. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduction to literature of early American history. Readings selected from some of best scholarship in field. Questions of colonial historians. Theories, methods, sources used in pursuit of those questions.

HIST 5802. Readings in American History, 1848-Present. (3 cr. ; A-F or Audit; Every Fall & Spring)
Readings-intensive course. U.S. history from Mexican-American War to present.

HIST 5831. Cultural Fallout: The Cold War and Its Legacy: Readings. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Culture of the Cold War, its legacy. How it affected/reflected domestic politics, public policies, civic life, gender expectations, sexuality, class relations, racial justice, and civil rights. Impact of domestic anti-communism and of American cultural politics abroad.

HIST 5871. Readings in U.S. Intellectual History: 19th-20th Centuries. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Definitions of American national identity from 1789 to the present as expressed in politics, religion, literature, painting, music, architecture, and history. prereq: instr consent

HIST 5881. American Foreign Relations to 1895. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Intensive readings in the historiography of American foreign relations with emphasis on American imperialism, domestic courses of foreign policy, and international political, economic, and cultural relations. prereq: instr consent

HIST 5890. Readings in American Indian and Indigenous History. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Students in this course will read recently published scholarship in American Indian and Indigenous history that takes up pressing research questions, promises to push inquiry in new directions, and that theorizes important interventions in our thinking to understand where the field is situated and moving. Reflecting the instinctively interdisciplinary nature of American Indian and Indigenous history, readings will be drawn not just from the discipline of history but across other disciplines such as Anthropology, American Studies, Geography, Literature, Political Science, and Legal Studies. As well, readings will include scholarship that reaches out to embrace the Global Indigenous studies turn. prereq: Advanced undergrad with instr consent or grad student

HIST 5891. American Indian and Indigenous Studies Workshop. (1.5 cr. [max 12 cr.] ; S-N or Audit; Every Fall & Spring)
The American Indian and Indigenous Studies Workshop brings graduate and advanced undergraduate students and faculty together to read and provide intensive feedback (written and oral) on their works in progress. As an interdisciplinary field, AIIS students stand to benefit from ongoing and engaged conversations about that work that will deepen and enhance their professionalization in the field. The readings for the workshop are submissions from the membership of the workshop (which will include participants who are not formally enrolled in the workshop). We read and consider two submissions per week (sometimes more if the submissions are shorter) that are pre-circulated to all participants via the workshop?s listserv. Readings under consideration include research papers, dissertation chapters, article manuscripts, research proposals, conference papers, and other submissions that will benefit from intensive engagement with the members and will deepen the knowledge of all of the participants. Students will gain experience with the research, writing, and revision process as well as scholarly conversations about original research and writing. The overarching aim of the workshop is to develop research, writing, revision, and scholarly discussion skills as well as community-building in American Indian and Indigenous Studies and professionalization in an increasingly interdisciplinary and global field of study

HIST 5900. Topics in European/Medieval History. (; 1-4 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Selected topics in European or medieval history not covered in regular courses; taught as staffing permits. prereq: Grad or [advanced undergrad with instr consent]

HIST 5901. Latin America Proseminar: Colonial. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduces beginning graduate and advanced undergraduate students to major historical writings on various Latin American themes. prereq: instr consent

HIST 5902. Latin America Proseminar: Modern. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduces beginning graduate and advanced undergraduate students to major historical writings on various Latin American themes. prereq: instr consent

HIST 5905. Topics in European Medieval History. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Selected topics in Medieval European history, up to 1500ce. prereq: Grad or [advanced undergrad with instr consent]

HIST 5910. Topics in U.S. History. (; 1-4 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
Selected topics in U.S. history not covered in regular courses. Taught as staffing permits. prereq: Grad or advanced undergrad student with instr consent

HIST 5920. Topics in African History. (; 3 cr. [max 15 cr.] ; Student Option; Periodic Fall & Spring)
Topics not covered in regular courses.

HIST 5930. Topics in Ancient History. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall & Spring)
Selected topics in ancient history not covered in regular courses. To be taught as staffing permits and as enrollment warrants. prereq: Grad or instr consent

HIST 5932. The Production of Knowledge, Negotiating the Past, and the Writing of African Histories. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Recent scholarship on social history of Africa. Focuses on new literature on daily lives of ordinary people in their workplaces, communities, households.

HIST 5940. Topics in Asian History. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Topics not covered in regular courses. prereq: Grad student or [advanced undergrad, instr consent]

HIST 5941. Readings in Chinese Documents. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Readings in Chinese on a topic to be selected by the instructor. Depending on the topic and the time period, readings may involve a mixture of modern and classical Chinese or may be entirely in modern Chinese. Consult instructor for more information. prereq: Reading knowledge of Chinese

HIST 5950. Topics in Latin American History. (; 1-4 cr. [max 15 cr.] ; A-F or Audit; Every Fall & Spring)
Selected topics in Latin American history not covered in regular courses. Taught as staffing permits. prereq: Grad or advanced undergrad with instr consent

HIST 5960. Topics in History. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Selected topics in history not covered in regular courses. Taught as staffing permits. prereq: [advanced undergrad with instr consent]

HIST 5962. Bell Library Research Seminar in Comparative World History, ca. 1000-1800 CE. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Research proseminar on actions of Europeans in wider world, 1000-1800. Based on documents in James Ford Bell Library. prereq: Grad student, instr consent

HIST 5964. Comparative Economic History. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Theoretical approaches guide cross-cultural examinations of major issues in the economic history of East Asia, Europe, and the New World. Agrarian structures in economic development, markets, the state and economic development, and the industrial revolution. prereq: instr consent

HIST 5970. Advanced Research in Quantitative History. (; 4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall & Spring)
Students will carry out publishable-quality research on a quantitative historical topic.

HIST 5990. Readings in Comparative History. (; 3 cr. [max 9 cr.] ; A-F only; Spring Odd Year)
Students read/discuss historical works that focus on common theme or employ similar methods in different geographic areas. Issues of cross-area comparison. Topics vary (e.g., peasant societies, race/ethnicity, states/nationalism). prereq: instr consent

HIST 5993. Directed Study. (1-16 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq [Grad student or sr], instr consent, dept consent, college consent.

HIST 5994. Directed Research. (1-16 cr. ; Student Option; Every Fall, Spring & Summer)
Work on a tutorial basis. Prereq [Grad student or sr], instr consent, dept consent, college consent.

History of Medicine (HMED)

HMED 3001W. Health, Disease, and Healing I. (HIS,WI; 4 cr. ; Student Option; Every Fall)
Introduction to intellectual/social history of European/American medicine, health care from classical antiquity through 18th century.

HMED 3002W. Health Care in History II. (HIS,WI; 4 cr. ; Student Option; Every Spring)
Introduction to intellectual/social history of European/American medicine, health care in 19th/20th centuries.

HMED 3035. Sex and Gender in US Medicine: Queering the Medical Model. (3 cr. ; A-F only; Periodic Spring & Summer)
Queering the Medical Model addresses homosexual, transgender, and intersex history of medicine in the United States from 1800 to the present along three intersecting themes. First, the course charts scientific constructs of sex, sexuality, and gender from the 19th to the 20th centuries. Second, it explores how sex and gender became entangled with the so-called medical model, from the role of medical jurisprudence in leveraging a two-sex system for legal claims, sex and sexual disorder research in the early 20th century, the development of hormonal and surgical technologies to manipulate gender morphology in the later 20th century, and the impact of the medical model on medical access historically and in the present. Finally, it identifies how queer and gender non-conforming people resisted, dodged, and mobilized changing scientific constructs, medical possibilities, and social opportunities. This course combines lectures, discussions, and guided engagement with historical materials from several archival holdings, alongside with relevant readings from history and other disciplines.

HMED 3040. Human Health, Disease, and the Environment in History. (HIS; 3 cr. ; Student Option; Every Spring & Summer)
Introduction to historical relationship of human health and the environment. How natural/human-induced environmental changes have, over time, altered our experiences with disease and our prospects for health.

HMED 3055. Women, Health, and History. (DSJ,HIS; 3 cr. ; A-F only; Periodic Fall & Spring)
Women's historical roles as healers, patients, research subjects, health activists. Biological determinism, reproduction, mental health, nursing, women physicians, public health reformers, alternative practitioners. Gender disparities in diagnosis, treatment, research, careers. Assignments allow students to explore individual interests.

HMED 3065. Body, Soul, and Spirit in Medieval and Renaissance European Medicine. (; 3 cr. ; A-F or Audit; Every Spring)
Body/soul in medieval theology/cosmology. Religious conceptions of body/soul. Medical conceptions in medieval world. Medieval/renaissance psychology. Medical astrology and its consequences. Medical normal/abnormal body. Medicine of reproduction and sexual identity. Death, burial, dissection, and resurrection in medical/religious perspective. Macrocosmic/microcosmic body. Limits to human power/authority over body. Anatomical/chemical body/spirit.

HMED 3075. Technology and Medicine in Modern America. (HIS,TS; 3 cr. ; Student Option; Every Fall & Spring)
How technology came to medicine's center-stage. Impact on production of medical knowledge, professionalization, development of institutions/industry, health policy, and gender/race disparities in health care.

HMED 3940. Topics in History of Medicine. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Selected history of medicine topics not covered in regular courses.

HMED 3993. Directed Study. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study.

HMED 4965W. Senior Research in Medical History. (WI; 3 cr. ; A-F only; Every Fall & Spring)
Seminar. Reading/discussion, individual directed research project with oral presentation. Students meet in peer groups and with instructor. prereq: Sr, instr consent

HMED 5075. Technology and Medicine in Modern America. (; 3 cr. ; A-F or Audit; Fall Odd, Spring Even Year)
How technology came to medicine?s center-stage. Impact on medical practice, institutions, consumers, production of medical knowledge, professionalization, health policy, gender/race disparities in health care. prereq: instr consent

HMED 5940. Topics in the History of Medicine. (; 3 cr. [max 15 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Selected history of medicine topics not covered in regular courses.

History of Science and Tech (HSCI)

HSCI 1011. Digital World. (HIS,TS; 3 cr. ; Student Option; Every Spring)
Essential knowledge and critical perspective to understand today's Digital World. The history and social impact of the digital revolution, including security, surveillance, "virtual reality," and the future of the Internet.

HSCI 1212. Life on Earth: Origins, Evolution & Ecology. (ENV,HIS; 4 cr. ; Student Option; Every Spring)
How have people explained where life came from and how it has developed over time? We examine controversies over life's origins, the Holocene extinction, human population growth, the Dust Bowl and soil conservation, DDT and falcon repatriation, and disease and responses to pandemics. Evolution, natural theology. Ecosystems.

HSCI 1585. Mammoths, Minerals, Monoculture: History of Earth and Environmental Science. (HIS; 3 cr. [max 4 cr.] ; Student Option; Every Fall)
This course investigates the many ways people across the globe have sought to understand the environment and the earth from antiquity to the present. We will study the context in which the modern earth and environmental sciences emerged, asking throughout the semester what knowledge traditions contributed to the development of the sciences we know today. We will investigate the historical perspectives that shaped three intersecting themes throughout the semester: the questions of geological time and of change in the study of the earth; human use of natural resources in industry and agriculture; and understandings of the earth and environment as a global system. We will examine secondary historical scholarship and primary sources from North and South America, Africa, Europe, and Asia in order to better understand the religious and philosophical stakes of earth and environmental science, the role of empire and state building in the development of geoscience, and the interrelationship of science and industry.

HSCI 1714. Stone Tools to Steam Engines: Technology and History to 1750. (HIS,TS; 3-4 cr. ; Student Option; Every Fall & Spring)
Technology is an enormous force in our society, and has become so important that in many ways it seems to have a life of its own. This course uses historical case studies to demonstrate that technology is not autonomous, but a human activity, and that people and societies made choices about the technologies they developed and used. It asks how technological differences between nations influenced their different courses of development, and why some

societies seemed to advance while others did not. We ask how technological choices can bring about consequences greater than people expected, and how we might use this knowledge in making our own technological choices. In particular, we explore the historical background, development, and character of the most widespread technological systems the world has known, from prehistoric stone tool societies, through Egypt and the pyramids, ancient Greece and Rome, the explosion of Islam, and the dynamic and often violent technologies of medieval Europe.

HSCI 1715. History of Modern Technology: Waterwheels to the Web. (HIS,TS; 3-4 cr. ; Student Option; Every Fall & Spring)
This course explores the many technological systems that have come to span our globe, alongside the widespread persistence of traditional technologies. We start with the earliest glimmerings of modernity and industrialization, and move on in time to the building of global technological networks. How have people changed their worlds through technologies like steam engines and electronics? Is it a paradox that many traditional agricultural and household technologies have persisted? How have technologies of war remade the global landscape? We ask how business and government have affected technological entrepreneurs, from railroads to technologies of global finance. We end by considering the tension between technologies that threaten our global environment and technologies that offer us hopes of a new world.

HSCI 1814. Revolutions in Science: The Babylonians to Newton. (GP,HIS; 3-4 cr. ; Student Option; Every Fall & Spring)
Development and changing nature of sciences in their cultural context. Babylonian/Greek science. Decline/transmission of Greek science. Scientific Revolution (1500-1700) from Copernicus to Newton.

HSCI 1815. Making Modern Science: Atoms, Genes and Quanta. (GP,HIS; 3-4 cr. ; Student Option; Periodic Fall, Spring & Summer)
How scientists like Darwin and Einstein taught us to think about nature; everything from space, time and matter to rocks, plants, and animals.

HSCI 2333V. Honors Course: A Century of Science in Modern America. (CIV,WI,HIS; 3 cr. ; A-F only; Every Fall)
Science and technology influence nearly every aspect of our daily lives as well as the communities in which we live, both locally and globally. How did science and technology become such ubiquitous and powerful aspects of American industry, government policy, public life, and international negotiation? What are the responsibilities of scientists and engineers who play a critical role in creating and maintaining these elements? How can the broader public position itself to provide encouragement, insight and critique of the research and applications of science and technology? This course is intended to examine these questions by exploring historical case studies that highlight ethical, political, and social issues that give meaning to, and in turn, are shaped by science and technology. Beginning with the role of scientists as professional experts in the Progressive era, we consider how ideals of scientific management impacted animal lives and workers = bodies. Ethical choices frame the application of expertise and require attention and specific decision-making. Using eugenics as an example, we will reflect upon the interplay between the often na?ve understanding of heredity and public policy and continue discussion into the application of contemporary genetic testing. Ethics are framed in social and political settings, and we will follow sometimes surprisingly comparable developments in Russia and the United States, with particular attention to large-scale engineering projects in the 1920s and 1930s and the space race in the 1950s and 1960s in order to understand how these reflected, or failed to reflect, risk and human life. This course meets the Historical Perspectives, Civic Life and Ethics, and Writing Intensive requirements as defined by the Council on Liberal Education. Along with Student Learning Outcomes, these requirements will help you continue to build critical tools for your work at the university as well as ways to evaluate and create knowledge in and beyond your intended career area.

HSCI 3211. Biology and Culture in the 19th and 20th Centuries. (CIV,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Changing conceptions of life and aims and methods of biology; changing relationships between biology and the physical and social sciences; broader intellectual and cultural dimensions of developments in biology.

HSCI 3242. Navigating a Darwinian World. (HIS; 3 cr. ; Student Option; Every Fall)
In this course we grapple with the impact of Darwin's theory of evolution in the scientific community and beyond. We'll examine and engage the controversies that have surrounded this theory from its inception in the 19th century through its applications in the 21st. What made Darwin a Victorian celebrity, a religious scourge, an economic sage and a scientific hero? We'll look closely at the early intellectual influences on theory development; study the changing and dynamic relationship between science and religion; and critically analyze the application of Darwin's theory to questions of human nature and behavior.

HSCI 3244. Nature's History: Science, Humans, and the Environment. (ENV,HIS; 3 cr. ; Student Option; Every Fall)
We examine environmental ideas, sustainability, conservation history; critique of the human impact on nature; empire and power in the Anthropocene; how the science of ecology has developed; and modern environmental movements around the globe. Case studies include repatriation of endangered species; ecology and evolutionary theory; ecology of disease; and climate change.

HSCI 3246. History of (Un)Natural Disasters. (ENV,HIS; 3 cr. ; Student Option; Periodic Spring)
Earthquakes, hurricanes, tsunamis, wildfires, epidemic disease, and technological failures? This course will examine large scale natural events in American and world history, the social, technological, and environmental conditions that underlie them, and their historical consequences. Human societies have long been embedded in physical landscapes where they are subject to specific environmental conditions and physical risks: eight thousand-year-old wall paintings in Turkey depict the eruption of Hasan Dag volcano over the city of Catal Huyuk, for example. But then and now, it takes a certain combination of social conditions and environmental events to create a natural disaster. In this course, we will use historical natural disasters to explore the interconnections between the structures and ideas of human society and environmental forces. Humans have not been simply the random victims of natural disasters; where and how they chose to live influenced the impact of any disastrous event. Examining these events in a historical context will help us see the social, technological, scientific, and environmental systems that have been constantly interacting, but which are normally taken for granted until they break down.

HSCI 3331. Technology and American Culture. (HIS,TS; 3 cr. ; Student Option; Every Fall & Spring)
American culture(s) and technology, pre-Columbian times to present. Artisanal, biological, chemical, communications, energy, environment, electronic, industrial, military, space and transportation technologies explained in terms of economic, social, political and scientific causes/effects.

HSCI 3332. Science in the Shaping of America. (DSJ,HIS; 3 cr. ; Student Option; Periodic Spring)
Science played a central role in taking scattered imperial colonies in North America to world power in just four centuries. This course investigates people, policies, and knowledge-making in a culture whose diversity was a critical part of its expanding capacities. It begins by examining the differences in ways of knowing as well as shared knowledge between Native Americans and Europeans and concludes by discussing how a powerful nation's science and technology shaped international relations. Class, race, ethnicity, and gender provided for a range of perspectives that contributed to science alongside social and economic developments. Online assignments, films and images, along with primary and secondary source readings provide the basis for class discussion.

HSCI 3401. Ethics in Science and Technology. (CIV,HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
In addition to examining the idea of ethics itself, this course will examine the ethical questions embodied in specific historical events, technological systems, and scientific enterprises. Commonly, technology is assumed to be the best engineered solution for a particular goal and (good) science is

supposed to be objective; however, this is never truly the case, values and moral choices underlie all of our systems for understanding and interacting with the world around us. These values and choices are almost always contentious. Through a series of historical case studies we will grapple with the big issues of right and wrong and the role of morality in a technological world. Our goal will be to learn to question and think critically about the things we create, the tools we use, and the ideology and practice of science.

HSCI 3421. Engineering Ethics. (CIV,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Ethical issues in engineering research and engineers' public responsibility/practice, using historical cases; historical development of engineering as a vocation/profession; ethical implications of advanced engineering systems such as nuclear weaponry and networked communications.

HSCI 3611. Enlightenment, Revolution, and the Rise of Modern Science. (GP,HIS; 3 cr. ; Student Option; Periodic Spring)
Understanding the origins of our own culture of Modern Science in the Enlightenment of the eighteenth century. Newton's ambiguous legacy; science as wonder and spectacle; automata and monsters; early theories of sex and gender; empire and scientific expeditions; reshaping the environment; inventing human sciences; Frankenstein and the limits of science and reason.

HSCI 3714. Stone Tools to Steam Engines: Technology and History to 1750. (HIS,TS; 3-4 cr. ; Student Option; Every Fall & Spring)
Technology is an enormous force in our society, and has become so important that in many ways it seems to have a life of its own. This course uses historical case studies to demonstrate that technology is not autonomous, but a human activity, and that people and societies made choices about the technologies they developed and used. It asks how technological differences between nations influenced their different courses of development, and why some societies seemed to advance while others did not. We ask how technological choices can bring about consequences greater than people expected, and how we might use this knowledge in making our own technological choices. In particular, we explore the historical background, development, and character of the most widespread technological systems the world has known, from prehistoric stone tool societies, through Egypt and the pyramids, ancient Greece and Rome, the explosion of Islam, and the dynamic and often violent technologies of medieval Europe.

HSCI 3715. History of Modern Technology: Waterwheels to the Web. (HIS,TS; 3-4 cr. ; Student Option; Every Fall & Spring)
This course explores the many technological systems that have come to span our globe, alongside the widespread persistence of traditional technologies. We start with the earliest glimmerings of modernity and industrialization, and move on in time to the building of global technological networks. How have people changed their worlds through technologies like steam engines and electronics? Is it a paradox that many traditional agricultural and household technologies have persisted? How have technologies of war remade the global landscape? We ask how business and government have affected technological entrepreneurs, from railroads to technologies of global finance. We end by considering the tension between technologies that threaten our global environment and technologies that offer us hopes of a new world.

HSCI 3814. Revolutions in Science: The Babylonians to Newton. (GP,HIS; 3-4 cr. ; Student Option; Every Fall & Spring)
Development and changing nature of sciences in their cultural context. Babylonian/Greek science. Decline/transmission of Greek science. Scientific Revolution (1500-1700) from Copernicus to Newton.

HSCI 3815. Making Modern Science: Atoms, Genes and Quanta. (GP,HIS; 3-4 cr. ; Student Option; Periodic Fall, Spring & Summer)
How scientists like Darwin and Einstein taught us to think about nature; everything from space, time and matter to rocks, plants, and animals.

HSCI 4060. Special Topics in History of Technology. (; 3 cr. ; Student Option; Periodic Spring)
Topics specified in Class Schedule

HSCI 4121W. History of 20th-Century Physics. (WI; 3 cr. ; Student Option; Periodic Spring)
The transition from classical to modern physics (relativity, quantum) and its architects (from Planck and Einstein to Heisenberg and Schr? dinger). The WWII bomb projects in the US and in Germany. Post-war developments (solid state, particle physics).

HSCI 4321. History of Computing. (HIS,TS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Developments in the last 150 years; evolution of hardware and software; growth of computer and semiconductor industries and their relation to other business areas; changing relationships resulting from new data-gathering and analysis techniques; automation; social and ethical issues.

HSCI 4455. Women, Gender, and Science. (DSJ,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Three intersecting themes analyzed from 1700s to the present: women in science, sexual and gendered concepts in modern sciences, and impact of science on conceptions of sexuality and gender in society.

HSCI 5211. Biology and Culture in the 19th and 20th Centuries. (CIV; 3 cr. ; Student Option; Every Fall & Spring)
Changing conceptions of life and aims and methods of biology; changing relationships between biology and the physical and social sciences; broader intellectual and cultural dimensions of developments in biology.

HSCI 5242. Navigating a Darwinian World. (; 3 cr. ; Student Option; Every Spring)
In this course we grapple with the impact of Darwin's theory of evolution in the scientific community and beyond. We'll examine and engage the controversies that have surrounded this theory from its inception in the 19th century through its applications in the 21st. What made Darwin a Victorian celebrity, a religious scourge, an economic sage and a scientific hero? We'll look closely at the early intellectual influences on theory development; study the changing and dynamic relationship between science and religion; and critically analyze the application of Darwin's theory to questions of human nature and behavior.

HSCI 5244. Nature's History: Science, Humans, and the Environment. (; 3 cr. ; Student Option; Every Fall)
We examine environmental ideas, sustainability, conservation history; critique of the human impact on nature; empire and power in the Anthropocene; how the science of ecology has developed; and modern environmental movements around the globe. Case studies include repatriation of endangered species; ecology and evolutionary theory; ecology of disease; and climate change.

HSCI 5246. History of (Un)Natural Disasters. (3 cr. ; Student Option; Periodic Spring)
Earthquakes, hurricanes, tsunamis, wildfires, epidemic disease, and technological failures. This course will examine large scale natural events in American and world history, the social, technological, and environmental conditions that underlie them, and their historical consequences. Human societies have long been embedded in physical landscapes where they are subject to specific environmental conditions and physical risks: eight thousand-year-old wall paintings in Turkey depict the eruption of Hasan Dag volcano over the city of Catal Huyuk, for example. But then and now, it takes a certain combination of social conditions and environmental events to create a natural disaster. In this course, we will use historical natural disasters to explore the interconnections between the structures and ideas of human society and environmental forces. Humans have not been simply the random victims of natural disasters; where and how they chose to live influenced the impact of any disastrous event. Examining these events in a historical context will help us see the social, technological, scientific, and environmental systems that have been constantly interacting, but which are normally taken for granted until they break down.

HSCI 5331. Technology and American Culture. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Development of American technology in its cultural/intellectual context from 1790 to present. Transfer of technology to America. Establishment of an infrastructure promoting economic growth. Social response to technological developments.

HSCI 5332. Science in the Shaping of America. (; 3 cr. ; Student Option; Periodic Spring)

The British colonies of North America were founded in precisely the same centuries as a revolution in European?s understanding of nature, transformed by the ideas of Galileo, Newton, and Linnaeus and by the technologies of the industrial revolution. Native Americans and African Americans had their own knowledge of nature, and their close understanding intersected with the increasingly scientific techniques brought with European settlers and enhanced the survival and intellectual capacities of the newcomers. By demonstrating the diversity of scientists in the ever changing demographics of an immigrant nation, the course argues that this diversity and the capacities of newcomers contributed to the national success in science and engineering. The engagement with science at points were used to try to limit access by women or African-Americans, but sciences was also used to discredit false theories through ever expanding emphasis on empiricism as well as attention to the social and economic consequences of innovation. The goal is to demonstrate those historical linkages in particular places and institutions as they influenced and reinforced specific scientific work, while, at the same time, being attentive to how scientific ideas and practices were shaped by American culture.

HSCI 5401. Ethics in Science and Technology. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Historical issues involving ethics in science. Ethical problems posed by modern science/ technology, including nuclear energy, chemical industry, and information technologies.

HSCI 5421. Engineering Ethics. (; 3 cr. ; Student Option; Every Fall & Spring)
Engineering ethics in historical context, including the rise of professional engineering societies; ethical problems in engineering research and engineers' public responsibility; ethical implications of advanced engineering systems such as the production of nuclear weapons; development of codes of ethics in engineering.

HSCI 5611. Enlightenment, Revolution, and the Rise of Modern Science. (3 cr. ; Student Option; Periodic Spring)
Understanding the origins of our own culture of Modern Science in the Enlightenment of the eighteenth century. Newton's ambiguous legacy; science as wonder and spectacle; automata and monsters; early theories of sex and gender; empire and scientific expeditions; reshaping the environment; inventing human sciences; Frankenstein and the limits of science and reason.

HSCI 5993. Directed Studies. (; 1-15 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

HSCI 5994. Directed Research. (; 1-15 cr. ; Student Option; Every Fall & Spring)
TBD prereq: instr consent

Hmong (HMNG)

HMNG 1011. Beginning Hmong I. (; 5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing skills. Emphasizes development of communicative competence.

HMNG 1012. Beginning Hmong II. (5 cr. ; Student Option No Audit; Every Spring)
Continuation of 1011. Listening, speaking, reading, writing skills. Development of communicative competence. prereq: HMNG 1001 or 1011

HMNG 1013. Medical Hmong. (; 1 cr. [max 2 cr.] ; Student Option No Audit; Periodic Summer)
This online course is designed for students and working professionals interested in learning the Hmong language in relation to the medical field, including but not limited to: 1. General phrases of greetings and introductions used in interpersonal settings. 2. Conversational Hmong, geared towards medical topics. 3. Medical terminology and cultural expressions relating to health and culture. No prior Hmong language background is required and there are no course prerequisites. While effective communication is essential in all fields of work, it is especially vital in the medical field. This online medical Hmong language course provides opportunities for students to learn and understand Hmong. Emphasis will be on key phrases, vocabulary, and cultural nuances related to the medical field. The course will provide a foundation for speaking, reading, writing, and listening comprehension for individuals interested in working with Hmong-speaking patients, clients, and others in the medical field. Students will have opportunities to learn and apply materials to real-world case scenarios and situations in the medical field.

HMNG 1015. Accelerated Beginning Hmong. (; 5 cr. ; Student Option No Audit; Every Fall & Summer)
Review of grammar/usage, practice in reading/ writing. Introduction to Hmong literature and formal writing. Topics in Hmong culture. prereq: Ability in basic spoken Hmong

HMNG 3016. Accelerated Intermediate Hmong. (5 cr. ; Student Option No Audit; Every Spring)
Review of grammar/usage, continued practice in reading/writing. Expanded introduction to Hmong literature/formal writing. Selected topics in Hmong culture. prereq: [1011 and 1012] or 1015 or instr consent

HMNG 3021. Intermediate Hmong I. (5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing. Grammar review/elaboration. Authentic texts, cultural readings, basic compositions, oral presentations. prereq: Hmng 1002 or Hmng 1012 or Hmng 1015

HMNG 3022. Intermediate Hmong II. (5 cr. ; Student Option No Audit; Every Spring)
Continuation of 3021. Listening, speaking, reading, writing. Grammar review/elaboration. Authentic texts, cultural readings, basic compositions, oral presentations. prereq: Hmng 3021

HMNG 3031. Advanced Hmong I. (4 cr. ; Student Option; Every Fall)
Speaking, listening, reading, writing. Complex vocabularies, sentence structures from Hmong newspapers, magazine, folktales, folk songs, novels, poetry, proverbs, riddles. Concepts/ terms from social/ritual settings. Idioms, slang, classifiers. prereq: 3022 or equiv or instr consent

HMNG 3032. Advanced Hmong II. (4 cr. ; Student Option; Every Spring)
Speaking, listening, reading, writing. Complex vocabularies, sentence structures from Hmong newspapers, magazine, folktales, folk songs, novels, poetry, proverbs, riddles. Concepts / terms from social/ritual settings. Idioms, slang, classifiers. prereq: 3031 or equiv or instr consent

HMNG 3290. Hmong Language Teaching Tutorial. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Students tutor beginning students of Hmong and are part of department's Hmong language team. prereq: Grade of A in 3022

HMNG 3993. Directed Studies. (1-5 cr. [max 15 cr.] ; Student Option No Audit; Periodic Fall & Spring)
Guided individual study of Hmong language or linguistics. prereq: instr consent, dept consent, college consent

HMNG 4001. Beginning Hmong I for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing skills. Emphasizes development of communicative competence. Meets with 1011.

HMNG 4002. Beginning Hmong II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Continuation of 4001. Listening, speaking, reading, writing skills. Development of communicative competence. Meets with 1012. prereq: 4001

HMNG 4003. Intermediate Hmong I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing. Grammar review/elaboration. Authentic texts, cultural readings, basic compositions, oral presentations. Meets with 3021. prereq: 4002

HMNG 4004. Intermediate Hmong II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Continuation of 4003. Listening, speaking, reading, writing. Grammar review/elaboration. Authentic texts, cultural readings, basic compositions, oral presentations. Meets with 3022. prereq: 4003

HMNG 4005. Accelerated Beginning Hmong for Graduate Research. (5 cr. ; Student Option No Audit; Every Fall & Summer)
Review of grammar/usage, practice in reading/ writing. Introduction to Hmong literature and formal writing. Topics in Hmong culture. prereq: Ability in basic spoken Hmong

HMNG 4006. Accelerated Intermediate Hmong for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)

Review of proper grammar/usage, practice in reading/writing. Expanded introduction to Hmong literature/formal writing. Topics on Hmong culture. prereq: [4001 and 4002] or 4005

HMNG 4007. Advanced Hmong I for Graduate Student Research. (4 cr. ; Student Option; Every Fall)
Speaking, listening, reading, writing. Complex vocabularies, sentence structures from Hmong newspapers, magazine, folktales, folk songs, novels, poetry, proverbs, riddles. Concepts/ terms from social/ritual settings. Idioms, slang, classifiers. prereq: 4004 or equiv or instr consent

HMNG 4008. Advanced Hmong II for Graduate Student Research. (4 cr. ; Student Option; Every Spring)
Speaking, listening, reading, writing. Complex vocabularies, sentence structures from Hmong newspapers, magazine, folktales, folk songs, novels, poetry, proverbs, riddles. Concepts/ terms from social/ritual settings. Idioms, slang, classifiers. prereq: 4007 or equiv or instr consent

HMNG 4102. Introduction to Hmong Language II for Graduate Student Research. (5 cr. ; Student Option; Every Summer)
Continuation of HMNG 4101. Foundations of learning Hmong. Speaking, reading, writing, listening. Communication/interaction, supplemented with grammatical details. Hmong community/culture. Meets with 1002.

HMNG 5040. Readings in Hmong Texts. (; 3-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Comprehensive, multidimensional overview of Hmong oral forms/traditions. Hmong legends, mythology, folksongs, birth, marriage/funeral rites. History, social/cultural anthropology. Values, life ways of traditional village society. Societal changes resulting from emigration to U.S.

HMNG 5041. Readings in Hmong Social and Cultural Experience. (3 cr. ; Student Option No Audit; Every Spring)
Students read a variety of authentic texts in Hmong, ranging from traditional folklore, folksongs, stories, research, news articles, and more. Utilizing these authentic texts, students will have in-depth discussions on Hmong literature, vocabulary, language applications and social/cultural structures. In-class discussions focus on language use, social interpretations of texts, and social applications. Class is conducted 80% Hmong, and 20% English. prereq: HMNG 3031 or instructor consent

Honors Colloquia (HCOL)

HCOL 3101H. The Honors Thesis - Development. (; 1 cr. ; A-F only; Every Spring)
This course provides a classroom-support format to assist Honors students with developing a firm foundation for research in advance of their final year of study. Most thesis writing will be done under the direction of the thesis advisor and committee, hence assignments in HCOL 3101H are structured to prompt students toward engaging best practices?generically, and in their specific field of study?in preparing to complete thesis work. The course?s ultimate objective is to provide context, structure, third-party scholarly guidance, and a supportive community of peers to promote excellence and expediency in fulfilling the final requirement for graduation with Latin Honors.

HCOL 3102H. The Honors Thesis - Writing. (; 1 cr. ; A-F only; Every Fall)
This course provides a classroom-support format to assist Honors students with the completion of the Honors thesis during their final year of study. Most thesis writing will be done under the direction of the thesis advisor and committee, hence assignments in HCOL 3102H are structured to prompt students toward engaging best practices? generically, and in their specific field of study? in completing thesis work. The course? s ultimate objective is to provide context, structure, third-party scholarly guidance, and a supportive community of peers to promote excellence and expediency in fulfilling the final requirement for graduation with Latin Honors.

HCOL 3103V. The Honors Thesis?Writing and Revision. (WI; 1 cr. ; A-F only; Every Spring)
This course provides a structured format and outside supervision to assist Honors students and their faculty advisors in drafting and editing the prose of the Honors thesis. Specifically, students are asked to regularly solicit their thesis advisor for specific kinds of feedback on draft writing samples, meet with the faculty member to go over this feedback, and then write up a plan for incorporating the feedback into subsequent drafts. HCOL3103V assumes that the bulk of the work devoted to developing a thesis topic, consulting secondary sources, collecting data, doing analysis, and producing creative output has already been completed. Hence, assignments in HCOL3103V prompt students and thesis advisors to meet regularly in service of crafting prose appropriate for their discipline and project. The final assignment comprises the submission of the completed thesis draft to the full thesis committee. [Students are encouraged to complete HCOL 3101H Thesis Development or an approved departmental course prior to this course.]

HCOL 3996H. Honors: Research Internship. (; 1-3 cr. [max 9 cr.] ; A-F only; Every Fall, Spring & Summer)
Supervised research-based internship with a University Honors Program community partner. prereq: Honors student

Honors Seminar (HSEM)

HSEM 2009H. Contemporary Art and Politics: From Marcel Duchamp to Ai Weiwei. (GP; 3 cr. ; A-F only; Periodic Fall)
This course will discuss the subject matters and practices of major contemporary artists all over the world - including Marcel Duchamp, Joseph Beuys, Christo and Jeanne-Claude, Jeff Koons, Andy Warhol, Yoko Ono, Ilya Kabakov, Jasper Johns, Jean-Michel Basquiat, Ai Weiwei, Shirin Neshat, Marina Abramovic, Kara Walker, etc. ? whose creative work frequently intertwines with commentaries on contemporary politics. As a strategy of being, these contemporary artists seem to use art to engage their audiences in a dynamic dialogue concerning certain aspects of contemporary life. These and other artists want to interpret political reality in order to change it; that is, to bring about social and political transformation through aesthetic means. This course will provide an overview of the ideas, strategies, and work of the artists as a critical lens for viewing the changing cultural and political landscape of an increasingly technological and globalized world. This course will take a comparative studies approach to the development of contemporary art in its historical, its social and political contexts, the increasing influence of the Western art in Asia, Africa, and other parts of the world, and the cross-cultural communication customs and protocols of international art practice and art criticism. Methodologically, this course first aims at integrating four major disciplinary approaches in discussing art history from post-WWII to the present day: historical studies, sociological studies, psychoanalytic studies and cultural studies. Such an integrated approach will provide a framework and a reference point for us to describe and understand contemporary art in certain historical and political contexts.

HSEM 2018H. The American Quest for Security. (CIV,HIS; 3 cr. ; A-F only; Periodic Spring)
For more than half a century, Americans have been concerned about security--national security as well as personal security. What do Americans mean when they talk about security? What are they worried about, and how do they try to keep themselves safe and secure? The quest for national security has taken shape at the level of foreign policy and military engagement. At the same time, Americans have endeavored to achieve their own safety and security through political and personal efforts. This seminar examines the various ways that citizens have addressed the issue of security in their own lives, whether their fears have been justified, and whether their efforts have kept them safe. The goal is for students to understand the issue of security in a historical context, and to enable them to be effective citizens in a world that often feels dangerous.

HSEM 2039H. IAS Thursdays: Across the University & Beyond. (; 3 cr. ; A-F only; Periodic Spring)
In this seminar the best of the University's research and creative work is brought to you. Every Thursday afternoon, the Institute for Advanced Study offers a presentation, a lecture, discussion, and performances by leading scholars and artists from around the world and within the University. Seminar participants will attend the Thursdays at Four series and meet on Tuesdays to discuss the presentations, which will draw upon

disciplines across the University. Students will do supplemental readings related to the presentations and talk with presenters as their schedules allow. This is the perfect seminar to introduce students to the rich variety of work done at the University.

HSEM 2041H. Greece and the Eternal Questions of the Liberal Arts. (CIV; 3 cr. ; A-F only; Periodic Spring)
Throughout history, communities have grappled with the same questions: how do we govern the community? What stories do we tell about ourselves that give meaning to our lives? How do we persuade each other? How do we express our values and identity? Are there roles proper to men and women? Does life have meaning after life ends? Ancient Greek society was a particularly intense location for considering those questions. These are questions fundamental to the liberal arts and fundamental to being a contributing citizen of a democracy in a globalized world. This class examines and critiques the ancient Greek answers in order to gain perspective on how to answer those questions for our own lives and our community.

HSEM 2043H. Finding the"Corporate Soul": Corporate advocacy, social responsibility, and community engagement. (; 3 cr. ; A-F only; Periodic Fall)
As the corporation has replaced government and the church as the dominant social institution in the industrialized world, the use of organizational advocacy as a means of persuasion has predictably increased. One reason for this increase is that stakeholders expect and demand corporations act in accordance with social and cultural norms. Advocacy messages provide organizations with a tool for promoting change, forming attitudes, and furthering dialogue about substantive issues. By engaging in advocacy, organizations enter into a public dialogue about issues that it views as significant in the realization of its goals and objectives. This seminar seeks to answer questions such as: What contribution does organizational advocacy make to public dialogue? How does corporate advocacy represent the goals and needs of the organization and society? What are the social implications of organizational advocacy? Our goal is to understand organizational advocacy beyond a single issue, campaign, or corporation. To achieve our goal, we will examine a variety of communication theories and international, national, and Minnesota-based campaigns.

HSEM 2044H. Enemies of the People? Journalism & Democracy in the United States. (HIS; 3 cr. ; A-F only; Periodic Spring)
This seminar explores the evolution of journalism's role in the democratic process ? from the nation's founding through today?s contentious relationship between President Trump and the press. Students will examine critical questions confronting journalism and democracy in the digital age: the growth of partisan news and decline in original reporting; the role of social media in facilitating propaganda and ?fake news?; and concerns about over-commercialization. At the same time, students will place these issues in historical context and consider a number of normative and critical theories concerning journalism?s proper role in our civic life. At a time when trust in both journalism and government are at an all-time low, this seminar explores how we arrived at this point and where we might be heading.

HSEM 2053H. The Psychology of Paranormal Phenomena. (; 3 cr. ; A-F only; Periodic Spring)
Research has shown that most Americans hold one or more supernatural, paranormal, or pseudoscientific beliefs. These include beliefs in mind reading, fortune telling, psychokinesis, remote viewing, therapeutic touch, out-of-body experiences, alien abduction, and cryptozoology (Bigfoot, the Loch Ness Monster, etc.). This course has two goals: The first is to introduce students to critical thinking and behavioral research methods. The second is to critically evaluate the evidence for a variety of supernatural, paranormal and pseudoscientific claims. Students will design and carry out their own experimental tests of these claims. The course will also include a guest lecture and demonstration by a local psychic. Reading per week: 40 Pages. Three written papers (3-5 pages each), one group presentation, and 4 quizzes.

HSEM 2055V. Biology and Society: How Evolution Shapes Our Lives. (WI; 3 cr. ; A-F only; Periodic Fall)
Evolution is a contested idea in our society. However, in a very real sense, evolution shapes our lives. In order to understand both the controversy surrounding evolution and its impact on individuals and society, this course explores a variety of themes at the intersection of biology and philosophy and is co-taught by a biologist and philosopher of biology. We will investigate various dimensions of human evolution and applications of different evolutionary ideas to understanding ourselves with a special focus on health and disease. Then we turn to how humans alter or control the evolutionary process through domestication, conservation of species, and climate change. Finally, we look at the intersection of evolution and religion in the public sphere, the evolution of ideas about the human species (including questions about biological race realism), and how both culture and language evolve. We close the course by reflecting on what the future of human evolution might look like.

HSEM 2064H. Sex, Gender, and the Digital Body. (; 3 cr. ; A-F only; Periodic Spring)
Our online lives are marked by different kinds of gender performance: social media selfies, texting, gaming, and YouTube vlogging, are among the digital genres in which we embody personas that have a gendered component. This course examines the relationship between digital technology and gender embodiment, to trace how concepts of gender evolve across platforms. Drawing examples from Egypt, Iran, the United States, India, and Europe, we see how digital platforms and networks build provide spaces for performance in different cultural contexts.

HSEM 2065H. Making Museums. (; 3 cr. ; A-F only; Periodic Fall)
Museums are a significant, international growth industry. Where museums of the past sought simply to educate their visitors, today?s museums also promise to entertain, move, and provoke them, to express identities, unsettle certainties, question histories, and consolidate communities. How do museums follow through on that promise? What techniques do curators use to shape visitor experience? And when do museums? ambitions to create culture also court controversy?

HSEM 2069H. Film as Art: Global Practices. (; 3 cr. ; A-F only; Periodic Fall)
?Film as Art? offers a selective overview of the most influential Non-Anglo-American ?film authors? in post WWII art film history: Federico Fellini, Luchinothe Visconti, Roberto Rossellini, Michelangelo Antonioni, Vittorio De Sica, Pier Paolo Pasolini, Bernardo Bertolucci, Giuseppe Tornatore (Italy); Fran?ois Truffaut, Jean-Luc Godard, Alain Resnais, Claude Chabrol, Costa-Gavras (France); Ingmar Bergman (Sweden); Rainer Werner Fassbinder, Werner Herzog, Volker Schl?ndorff, Wim Wenders (Germany); Andrei Tarkovsky (Russia); Luis Bu?uel, Pedro Almodovar (Spain); Krzysztof Kieslowski (Poland); Theodoros Angelopoulos (Greece); Abbas Kiarostami (Iran); Yasujirō Ozu, Shindō Kaneto, Akira Kurosawa (Japan); and Hou Hsiao-hsien (Taiwan). Throughout the course, we will learn the definitions of ? art film? and ?film author?, filmmaking as high art practice, major art film movements in the world: Italian New-Realism, French New Wave, New German Cinema, New Taiwanese Cinema, etc. and their influence on the American filmmaking. We will develop a historical appreciation of art film based on cinematic traditions contained within narrative, documentary, and experimental forms, and acquire a critical, technical, and aesthetic vocabulary relating to particular filmmakers. In particular, we will examine and evaluate the importance of genre and the legacy of individual ?auteurs? throughout the history of post-war cinema. We will study the individuality of the filmmakers and their contribution to our understandings of politics, society, and human relationship.

HSEM 2081V. Modernism in Mexico. (AH,WI,GP; 3 cr. ; A-F only; Periodic Spring)
'The Mexican Revolution' transformed the country's politics and society. Developments in art and architecture in Mexico during the first half of the twentieth century were equally dramatic. This course will explore the artists and works of art at the heart of this extraordinary cultural achievement. Among the figures to be studied will be the painters Diego Rivera and Frida Kahlo, the architect Luis Barragan, the filmmakers Emilio Fernandez and Luis Bunuel, and the photographers Manuel Alvarez Bravo and Tina Modotti. On a trip to Mexico City during Spring Break, we will be able to view in person many of the most important creations of Mexican modernism,

including not only those in museums, but murals and works of architecture. We will also visit such special sites as Kahlo's famous Casa Azul (Blue House) and, for historical background, the great Museum of Anthropology and the pre-Columbian city of Teotihuacan.

HSEM 2207H. Visual and Critical Thinking. (; 3 cr. ; A-F only; Periodic Fall)
This course will examine two forms of thought processes, Visual Thinking and Critical Thinking, and integrate their use and development. Visual Thinking strategies focus on the use of evidentiary reasoning. Based on structured series of exercises of observation and fine art, it develops the ability to examine art, objects, and environments. Critical thinking will focus on the organization of the mind for critical thinking and examines the structures and assumptions we make in our everyday lives. The class will focus on practice, not on lecture.

HSEM 2208H. Housing Matters. (DSJ; 3 cr. [max 6 cr.] ; A-F only; Periodic Spring)
Housing directly affects our physical and mental health, children's educational attainment, our economic opportunities, our transportation patterns and dependencies, and the environment. However, not all people are able to achieve the same levels of well-being because of disparities due to race, ethnicity, and class as they seek to obtain stable, secure, and affordable housing in supportive neighborhoods and communities. We will explore issues of power and privilege that contribute to those disparities. Public policy at the local and national levels will be examined as it both creates and minimizes social inequities in housing.

HSEM 2242H. Einstein's Universe. (; 3 cr. ; A-F only; Periodic Fall)
In this seminar, we examine the life and work of Albert Einstein (1879?1955). I will have you read the biography of Einstein by Walter Isaacson and watch the season of the TV series Genius based on it. In this course, you will explore several topics covered in the book and the TV series in greater depth. Class time will be divided about equally between discussing various aspects of Einstein?s personal life and learning about Einstein?s fundamental contributions to physics. In the former category, we will look at, for instance, his attitude toward Judaism and Zionism, his view of God, his pacifism, and the relationship with his first wife, fellow student Mileva Maric. In the latter category, the goal is to provide you with a thorough understanding of the basic ideas behind special relativity, general relativity, and quantum mechanics. To achieve this goal we will only need a modest amount of mathematics, which I will develop without presupposing more than the most basic high-school algebra and geometry. Since this material, however, calls into question deeply entrenched ideas about space and time and the nature of physical reality, you should be prepared to challenge yourself, conceptually and mathematically. Your reward will be a much deeper appreciation than you may have thought possible for a non-physics/non-math major of some famous parts of Einstein? s science, including time dilation, the twin paradox, E=mc2, Minkowski space-time, curved space-time, black holes, gravitational waves, the expanding universe, cosmological constant, and quantum entanglement. By the end of the course, you should have a solid understanding of some of Einstein?s most revolutionary ideas, of how he arrived at them, at what personal price, and in what broader socio-political and cultural context.

HSEM 2325H. Fantasy: A Ghastly, Wicked Introduction. (GP; 3 cr. ; A-F only; Periodic Fall)
This seminar is a ghastly wicked ride through main genres and formats of fantasy literature for adolescents and young adults. Fantasy is explored as a literature of possibilities and empowerment. The focus is on eight principal genres and on the role of fantasy in nurturing moral imagination, creative thinking, and the human potential.

HSEM 2413H. Insights, Ideas, and Innovation. (; 3 cr. ; A-F only; Periodic Fall)
This course is designed to introduce students to techniques for discovering everyday problems and fashioning potential solutions to those problems. Because the course material deals with ideas and idea generation, it is designed to be helpful to many future careers and callings by unlocking individual creative thinking skills. During the semester we will explore the genesis of ideas and the relationship between deep insight, empathy, consumer problems, ideas, and innovation. Specific topics to be covered during the semester include the role of insights, ethnography, and discovery techniques; individual and group creativity; the creative process and where ideas come from; innovation and the value thereof; and effective communication of ideas. This course seeks to provide students with the skills, tools, and mindsets to enable them to discover other people?s problems from which potential solutions might be built. These solutions include services, products, and potential businesses.

HSEM 2512H. The Mathematics of Elections and Social Choice. (MATH; 3 cr. ; A-F only; Periodic Fall)
This course will focus on the mathematics behind Voting Theory, apportionment, and fair division. Whether it is choosing a student association representative or ranking NCAA sports teams, there are a variety of selection methods that could be employed, but which is best? This course will use mathematics to study the strengths and weaknesses of different ways to tally votes or hold an election. Voting methods to be studied include single ballot vs instant-runoff (also known as a ranked-choice), as well as point-based rankings. This course will also explore the mathematics behind apportionment (and how it can lead to paradoxes), and how mathematics is used to evaluate the fairness of congressional districts in the context of gerrymandering. Finally, we will investigate ways to measure power differences between coalitions, and how to approach problems of fair-division like rent-sharing.

HSEM 2515H. Experiencing Local Environmental Solutions. (; 2 cr. ; A-F only; Periodic Fall)
This is a topical, field-trip-based course. This seminar will address some of the solutions to the environmental problems that affect our society by examining the science and by experiencing the solutions that are used on campus or in the neighboring community. Each week will focus on a solution to a different environmental issue (see schedule below). We will visit the places designed as environmental solutions, hear from the experts, and discuss the engineering and human aspects of these solutions. We will go to areas of campus that you would normally not visit or be able to visit. The field-trip destinations are accessible by campus bus, city bus, or train. The class will involve weekly reading and writing assignments. There will also be a semester-long, hands-on project to devise a realistic, potential solution to an environmental issue.

HSEM 2516H. Slow Death by Rubber Duck: Chemicals We Use and Their Effects on the Environment and Us. (; 2 cr. [max 3 cr.] ; A-F only; Periodic Spring)
We use chemicals every day. We bathe in chemicals. We apply chemicals to our lawn. Chemicals are sprayed to control insects. While chemicals are an important part of modern life, these chemicals wind up in the environment and in our bodies. This seminar will examine how our use of chemicals drives our exposures and ultimately, where these chemicals wind up in the environment and what their impacts are. This seminar is designed for you to look at how you use chemicals in your daily life and how this influences your exposure to chemicals, environmental releases of chemicals, and the impact of chemicals on humans and the environment.

HSEM 2528H. The Age of Entanglement. (; 3 cr. ; A-F only; Periodic Fall)
Quantum mechanics is everywhere. The goal of this seminar is to introduce students with a wide variety of backgrounds to this exciting but perplexing field. To ensure that it will be truly accessible to a broad range of students, the seminar will only presuppose some basic high school algebra and geometry. Given the topic, however, it will inevitably be quite challenging conceptually. The focus will be on ?entanglement?, one of the most baffling features of quantum mechanics. Met with derision at first from none other than Albert Einstein, attempts to harness entanglement for the purposes of quantum computing and quantum cryptography are funded today with billions of dollars. If the investors? high hopes are fulfilled?a big if admittedly?the scientific developments that started picking up steam in the Enlightenment may well culminate in an Age of Entanglement.

HSEM 2540H. Understanding the Russian Land. (ENV,HIS; 3 cr. ; A-F only; Periodic Spring)

Encompassing more than 6.5 million square miles, Russia is an immense and ecologically diverse country. The environment of the frigid and heavily forested heartland of early Russian civilization, as well as that of the "wild field" (the Eurasian steppe) on its border, have posed a series of challenges to Russians and have left an indelible mark on modern Russian culture. In this interdisciplinary seminar, we will study how Russians have conceived of and used nature from the medieval period to the dissolution of the Soviet Union. Articulating a particular approach to nature has been integral to several ideological and cultural projects in Russian history, including the formation of a literary tradition, the establishment of a multi-ethnic empire encompassing several biomes, and the development of a vision of Soviet science conquering and reshaping nature and the world. In the period we will study (the fifteenth century to 1991 Russia) underwent several profound epistemological shifts, and a particular focus of this course will be how the ways Russians created natural knowledge changed over time. Knowledge is power, and we will study how natural knowledge was used to strengthen and expand the state in the medieval, imperial, and Soviet periods. Another major focus of this course is the ravages that nature and humankind have inflicted on one another, and we will study how the environment influenced the development of Russia's form of agricultural slavery, serfdom, as well as the history of environmental degradation, including deforestation, the establishment of heavy industry, and nuclear disaster.

HSEM 2541V. Campus Obscura: A University of Minnesota Cabinet of Curiosity. (HIS,WI; 3 cr. ; A-F only; Periodic Fall)
This course examines the history of science, technology, and medicine through physical objects - maps, rare books, artifacts, instruments, specimens, manuscripts and considers how they are used to write history, produce public exhibits, and create identities. Short readings will introduce ideas about how experts have used these materials to write history, to produce public exhibits, and to create identities, and the focus of the course will be on objects themselves and having students do research that facilities their understanding of historical context. The University of Minnesota has many significant collections of artifacts and other items that are rich resources for the exploration of historically significant material culture, and continue to shape the University of Minnesota. Students will visit the Wangensteen Historical Library of Biology and Medicine, the Goldstein Museum of Design, the University Archives, the Weisman Art Museum, and the College of Biological Science?s Conservatory, among other sites.

HSEM 2621H. Environmental Futures: Climate Change Impacts and Strategies for Building Resilience. (; 2 cr. ; A-F only; Periodic Fall)
?Climate change is the most serious challenge that humanity has ever faced,? (Amitav Ghosh). This seminar will focus on the future of climate change, its emerging and far-reaching impacts on social and ecological systems, and the development of innovative strategies to address this challenge. The multidimensional problem of climate change will be examined through a variety of lenses, including the natural sciences, social sciences, and humanities, and the perspectives of indigenous peoples, environmental justice, and future generations. The emphasis is on the human dimensions of climate change. Throughout the course, a variety of techniques and exercises developed by futurists will be used to explore possible, plausible, and preferable environmental futures and develop environmental foresight expertise among attendees. Students will be challenged to build robust, agile and resilient policy options to achieve valued climate change outcomes. The purpose of this course is to prepare students to anticipate and design alternative climate change futures and create effective decisions and policies to achieve them.

HSEM 2623H. Biopiracy and seed for the post apocalypse: Genebanks, Genetic Diversity, and Identity. (TS; 3 cr. ; A-F only; Periodic Spring)
Our world food supply faces a variety of threats: changing climates, precipitation, and disease pressures; evolving pathogens; depleted soils; even nuclear war. Our best methods for responding to these threats involve making use of crop biodiversity. To that end, genebanks collect and preserve diverse crop accessions. In order to be effective, genebank curators have to make decisions about what to preserve. Those decisions are both scientific and cultural and like any such decisions have their critics and detractors. We will discuss genetic markers and measures for population diversity and how such tools can be leveraged to gain knowledge about crop diversity, make management decisions, and create improved varieties. However, food is cultural, and for many our relationship to crops is central to identity. Therefore, we will also examine who is privileged and left out of dominant narratives, and explore alternate ways of understanding crop diversity and preservation. Finally, we will explore two case studies. The first is Seed Savers in Decorah Iowa and its ties to Midwest Agrarianism. The second is two related Peruvian organizations: The International Potato Center and Parque de la Papa. Both of these organizations preserve Peruvian native potatoes, one as part of an international NGO using the latest genetic techniques and one using traditional agricultural practices in six associated Quechua communities.

HSEM 2624H. "Reality 101" - A Survey of the Human Predicament. (; 4 cr. ; A-F only; Periodic Fall)
How is the economy like a hurricane? Where does money come from? Will economic growth last forever? What is wealth? How many hours would it take you to generate the same amount of energy in a gallon of gasoline? Why are you so confident in your own beliefs? Why do you spend so much time on social media? Why do we want 'more' than our neighbors? What do all of these questions have to do with the environment? With your future? And what if our most popular societal beliefs about these issues turn out to be myths? Reality 101 will delve into these questions and unify them as they apply to the major challenges humanity faces this century, among them: slow economic growth, poverty, inequality, addiction, pollution, ocean acidification, biodiversity loss, and war. The course will provide students with a broad exposure to the foundational principles central to addressing these interrelated issues. The readings and lectures will cover literature in systems ecology, energy and natural resources, thermodynamics, history, anthropology, human behavior, neuroscience, environmental science, sociology, economics, globalization/trade, and finance/debt with an overarching goal to give students a general understanding of how our human ecosystem functions as a whole. Such a systems overview is necessary to view the opportunities and constraints relevant to our future from a realistic starting point. Though the hard science relating to sustainability will be surveyed, few answers will be presented and it is hoped that creativity and group dialogue will lead to emergent ideas on how these big themes fit together. While the class material is daunting and intense (reflecting our world situation), the course itself will be enlightening and deeply informative, with an open, engaging, and entertaining class atmosphere.

HSEM 2637H. Small but Impactful: Insects and the Environment. (ENV; 3 cr. ; A-F only; Periodic Spring)
Harvard biologist E. O. Wilson referred to insects and other invertebrates as the ?little things that run the world?. Insects may be small but are numerous, diverse and present almost everywhere ? as humans we encounter them not matter where we are and what we do! In this course, Honors students and the Instructor will jointly explore influences of insects as pollinators, ?recyclers?, and as invasive species that lead to environmental pollution; adaptations that enable insects to handle diverse environmental conditions including climate change; and impacts on humans of insects on planet earth. The course will include brief interactive lectures, select readings and videos for providing background and context related to a specific topic. Students will then explore each topic by engaging in open conversations, small/large discussions using active learning approaches such as think-pair-share, jigsaw discussion groups, and debates for sharing their perspectives based on individual backgrounds/major/interests.

HSEM 2707H. Battling the Bugs: Anthrax, Ebola, and Everyday Life - PubH Strategies for Prevention & Control. (; 3 cr. ; A-F only; Periodic Fall)
We share the planet with a myriad of living things. The smallest of those are the ones that may impact our lives the most. These creatures are in the news nearly every day: Ebola virus in Western Africa, measles outbreak among visitors to Disneyland, foodborne outbreaks on cruise ships, Zika virus precautions for pregnant women. This course will focus on the importance of infectious disease prevention,

control, and treatment to the health and well-being of the global community. Students will explore the many facets of public health response operations and decision-making which are often behind the scenes and not well understood by the general public.

HSEM 2716V. Social Justice and Health. (DSJ,WI; 3 cr. ; A-F only; Periodic Spring)
This seminar explores matters of social justice related to health. Class sessions predominantly focus on discussion of specific practical issues such as the promotion of race-specific therapies as an approach to ameliorating health disparities, the inclusion of homeless persons in research providing free access to health care, and the allocation of HIV medications in impoverished developing countries. Readings from multiple disciplinary perspectives ground examination these social justice issues. Discussions incorporate consideration of these issues? institutional and broader social contexts.

HSEM 2719H. Mass Incarceration and Public Health: An American Crisis. (; 3 cr. ; A-F only; Periodic Fall)
Mass incarceration is one of the major public health challenges facing the United States. Each year, millions of people cycle through the criminal justice system. Justice-involved people experience far higher rates of chronic health problems, substance use, and mental illness than the general population. Further, our country's prisons and jails are often ill-equipped to handle these complex health conditions, perpetuating health inequities. Mass incarceration contributes to powerful health disparities in the United States, affecting the health of entire communities and across generations. This course will examine the intersections of mass incarceration and public health. We will explore individual and community-level health impacts of incarceration, with a focus on the relationship between mass incarceration and health disparities, particularly in communities of color. This course will consider specific populations at particularly high risk, including detained youth, pregnant incarcerated women, and the elderly. Students will have an opportunity to tour local correctional facilities and hear directly from experts in the field, including formerly incarcerated people.

HSEM 2719V. Mass Incarceration and Public Health: An American Crisis. (WI; 3 cr. ; A-F only; Periodic Fall)
Mass incarceration is one of the major public health challenges facing the United States. Each year, millions of people cycle through the criminal justice system. Justice-involved people experience far higher rates of chronic health problems, substance use, and mental illness than the general population. Further, our country's prisons and jails are often ill-equipped to handle these complex health conditions, perpetuating health inequities. Mass incarceration contributes to powerful health disparities in the United States, affecting the health of entire communities and across generations. This course will examine the intersections of mass incarceration and public health. We will explore individual and community-level health impacts of incarceration, with a focus on the relationship between mass incarceration and health disparities, particularly in communities of color. This course will consider specific populations at particularly high risk, including detained youth, pregnant incarcerated women, and the elderly. Students will have an opportunity to tour local correctional facilities and hear directly from experts in the field, including formerly incarcerated people.

HSEM 2722H. Human Disease Influenced by Environmental Factors. (; 3 cr. ; A-F only; Periodic Fall)
This seminar aims at understanding whole organisms and cellular functions in response to various macro-environmental events, i.e. radiation, food carcinogens, global warming, pollution etc., that promote the disease process. Cells are consistently exposed to changing conditions, and they are programmed to effectively respond to diverse stimuli or insults under normal physiological condition. However, when such conditions exceed cell? s inner capacity, cells can undergo apoptosis, or become senescent or in some cases, they can acquire pathological properties, which lead to the progression of various human diseases. In particular, environmental changes such as climate change caused by human activities can significantly affect human health and ecosystems, and there are growing concerns about emerging new disease that is a threat to human health.

HSEM 2724V. The Sex Talk You Should Have Had: Controversies in Sexual Health. (CIV,WI; 3 cr. ; A-F only; Periodic Fall)
Reproductive and sexual health is an increasingly important topic in community settings. Pharmacists can play a vital role in promoting safe and healthy practices that will improve the health of their communities and are an important source of reproductive and sexual health information and advice. This course is designed to expand and enhance community-based reproductive and sexual health knowledge and skills while preparing students to be informed and active participants in ethics driven debates surrounding reproductive and sexual health. The Sex Talk You Should Have Had covers three important sections in sexual health that interface in the community pharmacy setting. These topics include the HPV vaccine, contraception, and Sexually Transmitted Infection/Disease (STI/STD) testing and treatment options. Each of these sections is addressed in weekly modules that provide thorough introduction to the topic, an overview of how the treatments or medications work, and related contemporary topics of debate. This is a hybrid course with extensive online discussion with limited in-class meetings.

HSEM 2725H. Zombies and their Souls: Philosophy, Bioethics and the Undead. (; 3 cr. ; A-F or Audit; Periodic Spring)
We want money, love and fame. They want brains. Who is to say that our values are superior? This seminar will use zombie movies as a way of exploring fundamental issues in bioethics, the philosophy of mind and the philosophy of psychology. Are zombies conscious? Do they have free will? Should they have rights? If zombies could be safely controlled, would it be unethical to make them slaves or pets? What about experimenting on them, or using their organs for transplantation? If I were to become a zombie, would I still be me, or would I be something else?

HSEM 2801H. Think Like a Lawyer: The Art and Adventure of Torts. (CIV; 3 cr. ; A-F only; Periodic Fall)
Law is the foundation of modern society. The ability to understand our legal system is invaluable in any profession, ranging from business and health to science or art. This seminar offers an introduction into legal thinking: Not merely what the laws are, but why we have them and, more importantly, how we come up with them. As a focus, we will be grounding ourselves in torts, a fundamental area of legal education that covers the civil wrongs. Students will have an opportunity to get a feeling for the law school experience as we use the case method, along with some Socratic method and ample discussion. We will focus on the basics of legal analysis, and learn how to apply that to critical thinking. Students successfully completing this seminar will be mentally armed and dangerous.

HSEM 2802H. Cinematic Representations of American Law. (DSJ; 3 cr. ; A-F only; Periodic Spring)
Representations of American law in 20th century American films offer unique perspectives that help us understand the larger context in which the legal system operates--and offer a visual supplement to traditional ways--case law and statutory interpretation of reading the law. This course will discuss how cinematic interpretations of American law have been perceived and accepted inside and outside Hollywood, inside and outside the legal community, and inside and outside the United States. The course will begin by teaching and discussing some fundamentals of American law, using legal films to illustrate the doctrinal concepts and processes involved in civil procedure, criminal law and procedure, jury trials, evidence, contracts, torts, constitutional law, the First Amendment, legal ethics, professional responsibility, etc. Using clips from of cinematic masterpieces, we will visualize and discuss sophisticated legal concepts. This interdisciplinary approach-teaching law through film-- will engage students visually, to help them better understand and discuss legal concepts. It will also help students appreciate the broader humanities and arts context in which legal discourse evolves, especially in a today's global era. Course readings will include statutes, legal cases, historical documents, novels, and commentaries. Viewings will include classic legal films.

HSEM 3013H. Caravaggio: Bad Boy of the Baroque. (AH; 3 cr. ; A-F only; Periodic Spring)
This seminar examines the life and art of Michelangelo Merisi da Caravaggio

(1571-1610), one of the most arresting and controversial painters in the history of art. Our examination will range from issues of self-fashioning and self-portraiture to questions of biography, patronage, and iconography, and will include a viewing of Simon Schama's 2006 film, Caravaggio. Special emphasis will be given to problems of methodology and to various ways of "reading" and viewing his complex and provocative works. During Spring Break the seminar will incorporate a Study Abroad component in Rome, where we will be able to see some of his most important paintings, in context, as well as works by many other Baroque masters.

HSEM 3023H. Race: The History of an Idea in North America. (DSJ,SOCS; 3 cr. ; A-F only; Periodic Fall)
This upper-level Honors seminar explores the roots and rationales presented when constructing and upholding ideas of race. This class examines the processes of racial formation in science, law, history, immigration policy, education, leisure, marriage, and medicine. The course is invested in getting at the heart of how Americans came to understand, identify, and codify the import of race since the 1900s.

HSEM 3031H. Art, Power, and Politics: Bernini and His Transformation of Baroque Rome. (AH; 3 cr. ; A-F only; Periodic Spring)
This seminar explores the transformation of Rome in the seventeenth century. Our lens for understanding the remaking of the Baroque city will be the works of Gian Lorenzo Bernini (1598-1680), one of the most remarkable, influential, and powerful artists in the history of Western art. Our examination will focus on Bernini?s sculpture and architecture that he carried out on behalf of popes and cardinals, with special emphasis given to their political, religious, and social meanings. We will also explore Bernini?s biography and examine the style and iconography of his sculpture, architecture, and painting. We will view Simon Schama?s 2006 film, Bernini, and, during the Spring break, have the extraordinary opportunity to study Bernini?s works first-hand in Rome.

HSEM 3054H. Minds, Brains, and Innovation. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Spring)
This seminar course will examine recent research findings from psychology and cognitive neuroscience to arrive at a better understanding of the conditions that foster, or impede, flexible thinking or 'mental agility.' Two key questions will be examined throughout. First, what are the relative roles of predominantly controlled or deliberate modes of cognitive processing versus more automatic (or spontaneous) processes in enabling and sustaining creatively adaptive thinking? Second, how do mental representations at differing levels of specificity highly abstract versus highly specific contribute to flexible thinking?

HSEM 3056H. Malignant Political Aggression and Heroic Resistance. (; 3 cr. ; A-F only; Periodic Fall)
This seminar begins with a general examination of the role of conformity, denial and obedience in perpetrating malignant political aggression. We will examine the personal and situational forces, the social dynamics of small group norms and behaviors, and broader social and institutional arrangements, all of which interact to induce individuals and groups to participate in various forms of malignant political aggression.
We will examine in some detail the role of dehumanization, compartmentalized thinking and perception, personality predispositions, etc. To counterbalance the pessimism inherent in this focus, we will also examine the opposite end of the spectrum--political heroism and altruism, which often arise in response to malignant political aggression. Are these heroes ordinary or extraordinary people, and how do they differ from perpetrators? How many ethical 'kudos' do they deserve and why? What is their role in instantiating the larger norms of ethical conduct in our political system? In examining these more general forces, we will rely on specific examples such as the holocaust, the massacre at My Lai, the rescuers of Le Chambon and several others. There are, sadly, many 20th and 21st Century examples upon which to draw in explicating the forces underlying larger-scale malignant political aggression.

HSEM 3064H. Historians Write Autobiography. (; 3 cr. ; A-F only; Periodic Fall)
Historians who write autobiography face some obstinate challenges. As professional historians they know their sources are necessarily selective and incomplete, and that every perspective brings its own bias. Their own flawed memory tells them as much. Yet they intend to capture something about their own lived experience that, when recounted with as much candor as possible, will illuminate their personal past in ways that speak to others. When historians bring their skills of critical historical analysis to their own lives, what kinds of autobiographies do they produce? How is their understanding of the craft of history, its methods and its limitations, reflected in their personal life stories? We will explore how historians have engaged in what can be called a writing of the self, with a focus on the second half of the 20th century. We will examine how they place themselves into particular social and political contexts as historical figures with a valuable perspective on their life and times. Students will research and write their own short autobiographical pieces.

HSEM 3065H. Trust, Technology and Human Communication. (; 3 cr. ; A-F only; Periodic Fall)
Trust is a central component of our lives. Without trust, we could not function as individuals, and we would not have functioning social and civic systems. How and why do humans trust? Whether face-to-face or mediated by technology, one-on-one or in groups, the basis for how we build trustworthy, durable relationships is our communication. For millennia, this communication took place with our bodies: via gestures, facial expressions, sounds, movements, and eventually, through spoken language. Later, writing and its technologies supplanted earlier forms, creating new opportunities for trust. In this seminar, we will explore the relationship between trust, technologies, and human communication by a) reviewing research from sociology, rhetoric, psychology, and other fields to understand the nature of trust; b) exploring the history of communication technology, from the oral cultures to the first forms of writing to the printing press to the Internet; c) investigating trust, technology, and communication in specific contexts, with a focus on social media and the Internet and key features such as the confirmation bias and the changing nature of expertise. These contexts will include medical/ health communication; social actions; online communities; political and scientific reporting.

HSEM 3066H. The Tale of Genji: A View of Aristocratic Culture in Early Japan. (; 3 cr. ; A-F only; Periodic Fall)
The early eleventh-century novel The Tale of Genji by the Japanese court lady Murasaki Shikibu is thought by many to be the first novel in world history and the first major work by a known woman author. In this class, we will read the entire work in Royall Tyler?s English translation and explore its literary qualities, its ways of representing character, and its methods of plot construction. Can this book be treated as a ?modern novel,? or can it only be understood as a product of its times? Does the existence of a large community of writing women at this point allow us to explore a distinctive ?female perspective? on this period? How did women and men express themselves and communicate through literature, and how did gender difference express itself in what they wrote?

HSEM 3069H. Literature and Medicine. (; 3 cr. ; A-F only; Periodic Fall)
The sign carved above the door to the ancient Library at Thebes read: ?Medicine for the Soul.? This course focuses on the intersection of literature and medicine, both from the point of view of the medical field and from a literary standpoint?medicine in literature, but also literature in medicine. For example, both narrative and storytelling are essential components of literature but they can also help doctors understand patients? stories. Likewise, the recent documentary Still Dreaming tells the story of a production of Shakespeare?s A Midsummer Night?s Dream by residents in a nursing home, revealing the benefits of the literary arts for health and happiness. Throughout the semester, we will examine works that connect the world of science with the long history of recorded human experiences in the literature of illness, the body, and death. Through analysis of novels, short stories, memoirs, poetry, drama, film and television, we will explore the intersection of literary works, narrative studies, and medical narratives to address the healing power of words. This course should interest students who care about how literature makes a difference in the world, and who are curious about how medicine is related to the arts. The course may include guest speakers as well as

a visit to the Center for Humanities in Medicine at the Mayo Clinic.

HSEM 3075H. Humans and Rights in Historical Perspective. (CIV; 3 cr. ; A-F only; Periodic Fall)
In the second half of the twentieth century, in the wake of World War II and decolonization, a language of human rights developed that emphasized rights as individual and universal. Many of us now take this particular notion of human rights as a given. In this seminar, we will explore the complicated and multi-faceted history of how societies in different parts of the world have defined what it is to be human, the treatment owed to humans, and various kinds of rights. Some of these philosophies are grounded in religion and others in secularism. Some identify the nation-state as the adjudicator of rights, while others would empower international organizations or grassroots movements. For some, the individual is sacrosanct, while for others, persons are inextricably embedded in social webs. We will study how these concepts have changed over time as the globe has become increasingly interconnected and consider their relevance and application in our contemporary society. The semester will be divided into five mini units. In the first, we will explore concepts of the human and of rights in major faith traditions. In the second, we will examine the debates that emerged from European colonialism in the Atlantic world. In the third, we will study the emergences of an explicit language of human rights after World War II. In the fourth, we will look at human rights issues in the United States. And in the final unit, you will pursue your own research and collaborate in small groups to make presentations and facilitate discussion around common themes.

HSEM 3076H. Children and Cinema: The Child?s Mind, the Child?s Eye, and the Moving Image. (; 3 cr. ; A-F only; Periodic Fall)
We often think that children perceive the world differently from adults. In cinema, this perceived difference has led, on the one hand, to anxiety about film's effects on youth. On the other hand, it has led to a search for cinematic forms that respond to children's visual and cognitive ?uniqueness.? Indeed, throughout the world, childhood vision has long served as impetus and metaphor for re-envisioning cinema: for honing what it looks like, how it is produced, and how it is circulated and exhibited. This seminar examines these provocative and fruitful intersections between childhood and cinema. We will ask how the child viewer has been understood cognitively, politically, and socially, and analyze films made for children or inspired by understandings of children's minds and eyes. We will also explore how childhood and youth have sparked institutional developments in cinema, and influenced film and media studies as a discipline. Our subjects include, among others, research on children and the movies (e.g., the interwar Payne Fund Studies); the intersections between developmental psychology and children's films; childhood perception, the avant-garde, and animation; youth and postwar ?new waves?; and children's film studios as pedagogical spaces for filmmakers. Films and readings are drawn from the United States, United Kingdom, Eastern and Western Europe, the Middle East, Africa, and Asia.

HSEM 3076V. Children and Cinema: The Child's Mind, the Child's Eye, and the Moving Image. (WI; 3 cr. ; A-F only; Periodic Fall)
We often think that children perceive the world differently from adults. In cinema, this perceived difference has led, on the one hand, to anxiety about film's effects on youth. On the other hand, it has led to a search for cinematic forms that respond to children's visual and cognitive "uniqueness." Indeed, throughout the world, childhood vision has long served as impetus and metaphor for re-envisioning cinema: for honing what it looks like, how it is produced, and how it is circulated and exhibited. This seminar examines these provocative and fruitful intersections between childhood and cinema. We will ask how the child viewer has been understood cognitively, politically, and socially, and analyze films made for children or inspired by understandings of children's minds and eyes. We will also explore how childhood and youth have sparked institutional developments in cinema, and influenced film and media studies as a discipline. Our subjects include, among others, research on children and the movies (e.g., the interwar Payne Fund Studies); the intersections between developmental psychology and children's films; childhood perception, the avant-garde, and animation; youth and postwar "new waves;" and children's film studios as pedagogical spaces for filmmakers. Films and readings are drawn from the United States, United Kingdom, Eastern and Western Europe, the Middle East, Africa, and Asia.

HSEM 3081V. Anthropology of Place and Displacement in the Contemporary World. (GP,WI; 3 cr. ; A-F only; Periodic Fall)
This course asks questions about the meaning of place, the relationship of space to place, the relationship of identity to place, and the relationship of place to environmental change in the event of industrial pollution, development projects, natural disasters and climate change. Theories of and ethnographic accounts of space and place in Cultural Anthropology and Geography will be discussed. In addition to foundational texts in the topic, we will also read contemporary accounts of non-western places.

HSEM 3082H. Race and Sport. (DSJ; 3 cr. ; A-F only; Periodic Spring)
This class examines how race, gender, and sport intersect as sites of resistance and reform in twentieth-century American life. With the intensification of Jim Crow coinciding with the professionalization and commercialization of sports, athletes of color became central to American debates about science, citizenship, class, ethnicity, sexuality, social mobility, belonging, culture, and entitlement. This seminar will be particularly interested in how athletes of color forced a place for themselves in sports like baseball, boxing, football, golf, and basketball by exercising different models of political protest, citing an urgent need for social justice reforms that spread beyond the realm of sport.

HSEM 3083H. Language and Food. (; 3 cr. ; A-F only; Periodic Spring)
What could be more central to our lives than language and food? We learn language (together with gesture) and the tastes (textures, smells, visual features, and sounds) that we associate with food early in our lives, and both form an important part of our identities. In this course, we will address the following questions: 1) How do we organize our language and bodies around food, i.e., how do we use them to get to and from the table and to proceed in a meal (e.g., at a sushi restaurant)? 2) How do we use language to taste, identify and assess food, and how do these fine distinctions and discriminations define us as people and relate to our identity? 3) How do we talk about our experience of food and tell stories about food? 4) What metaphors do we have for food? 5) How does language relate to gender in the context of food? 6) How is language used to socialize children around food? We will explore the relation between language and food by analyzing actual conversations among people eating a variety of foods. The conversations will be in a variety of languages (including English, Japanese, Chinese, Lao, Kri, Eegimaa, Wolof, Italian, Persian, German, Danish, French, Russian, Swedish, Dutch and Spanish). The class will be most rewarding for students who like to cook/eat, talk about food, and educate their palate.

HSEM 3087H. History through Memoir. (; 3 cr. ; A-F only; Periodic Fall)
This honors seminar uses memoirs "non-fictional life stories narrated in the first person?" as a lens into the past and, just as importantly, as a way to investigate what counts as "history" itself. The relationship between personal narratives and professionally produced histories is often fraught or confused, even though both can reasonably be understood as forms of creative non-fiction. Is the memoirist responsible to the historical record in the same way as an historian? Does the historian know how to assess and appreciate the power of personal memory? What kinds of memoirs do historians write? We will examine a range of memoirs that speak variously about historical and emotional truths, about memory and identity and place, about the ability of individual experience to illuminate a broader social and political history. We will attend to the narrator?s voice and explore how certain kinds of writing enable (even produce) certain kinds of discoveries. Throughout, we will discuss the gains and the limitations of using personal stories to understand past experience. A note of clarification: while autobiographies tend to be chronological narratives of most of a person's life (without the ending, of course), memoirs focus more selectively--and often without regard to linear chronology--on crucial moments or themes in the narrator's experience. This course prioritizes memoirs over autobiographies, and it takes most of its examples from the boom in memoir writing over the last three decades. It does not offer a history of memoir as a genre. In

particular, it features memoirs that go beyond the experiences of an individual narrator to reveal broader social and political contexts.

HSEM 3087V. History through Memoir. (WI; 3 cr. ; A-F only; Periodic Fall)
Memoirs?non-fictional life stories?offer an intriguing lens into the past. They vividly portray personal experiences, but they also raise questions about the reliability of the narrator. What kinds of histories are memoirs? Is the memoirist responsible to the historical record in the same way as a professional historian? What kinds of memoirs do historians write? We will examine memoirs written in the last two decades that explore ethnicity, identity, migration, memory, and belonging, and that use individual experience to illuminate a broader social and political history in the United States. We will attend to the narrator?s voice and writing strategies. In addition to writing short analytical and reflective pieces, you will research and write your own (8-10 page) personal narrative, placing a personal experience into its historical context and creating a sense of specific time and place. Seeing history through the lens of memoir shows how lives are shaped by specific historical circumstances, even as people make choices about how to frame and narrate their experiences.

HSEM 3092H. Music, Revolution, War. (; 3 cr. ; A-F only; Periodic Spring)
From Beethoven to Woodstock, from the French Revolution to the protests that brought down Communist regimes at the end of the 1980s, music has played a central role in inspiring political and social change. In an even longer tradition, music has summoned soldiers to risk their lives, even as it likewise, whether in a sacred ceremony or on the political stage, has inspired mass action in peace. This course will proceed historically, examining moments when revolution, ideological conflict, or war suggested vast changes were underway in society and culture, reflected in, but also instigated by music.

HSEM 3092V. Music, Revolution, War: From Napoleon to Trump. (AH,WI,CIV; 3 cr. ; A-F only; Periodic Spring)
From Beethoven to Woodstock, from the French Revolution to the protests that brought down Communist regimes at the end of the 1980s, music has played a central role in inspiring political and social change. In an even longer tradition, music has summoned soldiers to risk their lives, even as it likewise, whether in sacred ceremony or on the political stage, has inspired mass action in peace. This course will proceed historically, examining moments when revolution, ideological conflict, or war suggested vast changes were underway in society and culture, reflected in, but also instigated by music. No prerequisites and no musical background assumed.

HSEM 3203H. An Understanding of Place: Historic, Cultural, and Personal Investigations. (; 3 cr. ; A-F only; Periodic Spring)
Who we are as designers and planners is a culmination of personal experiences, historical and cultural influences. Many times these influences interact in ways that guide our thoughts and designs without our reflection on the impact they can have on us and without an understanding of the implicit bias they can extend and impart to our work. The goal of this class is to use personal reflection essays, combined with explorations of cultural influences on our understanding of place to help reveal the lenses through which we evaluate the world and that guide our efforts and expectations as place-makers.

HSEM 3205H. A Resilient, Just, Water Future: Living with the Mississippi River. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall)
Located on the banks of one of the world's great rivers, the University of Minnesota, through its teaching, research, and campus practices, is a model for developing future-oriented, resilient relationships between communities and water. Water is essential to humanity's well-being, and is also threatened in myriad ways. Working with communities of scholars and professionals on and off campus, this seminar creates knowledge-sharing programs that increase interdisciplinary and cross-sector capacity to address the related issues of water and justice, two of society's greatest challenges. Working collectively, biological and physical scientists, planners, designers, advocates, and people involved in public interpretation and education must develop a "21st century" approach to living with the urban Mississippi, one that uses the river as a community, environmental, and economic asset without diminishing the rivers key ecological functions upon which we depend.

HSEM 3308V. Incarceration and the Family. (WI; 3 cr. ; A-F only; Periodic Spring)
It is now estimated that more than 2.7 million children have a parent currently behind bars, and more than 5 million children have experienced a parent?s incarceration in their lifetime. When parents are incarcerated, there are collateral consequences for children, families, communities, and society. Children of incarcerated parents are at risk for a number of adverse outcomes, including behavior problems, academic difficulties, substance abuse, and criminal activity. As a liberal education course with an explicit focus on Diversity and Social Justice in the United States, we will use an interdisciplinary perspective to explore the issue of mass incarceration, focusing on the impact of incarceration on children and families.
This class will include opportunities to visit local correctional facilities and engage with community-based programs serving families impacted by incarceration. Topics will include parent-child contact during incarceration, intersections between incarceration and child welfare, systemic disparities by race and class, and intergenerational cycles of incarceration.
prereq: [Jr or sr] honors student

HSEM 3327H. Resilience in Children and Youth: Global Perspectives on Overcoming Trauma and Disaster. (; 3 cr. ; A-F only; Periodic Fall)
How do children overcome hazardous experiences to succeed in life? What do we know about the processes that reduce risk and promote resilience in young people confronted with the increasing hazards of war, disaster, migration, homelessness, and other extreme adversities around the world? This course examines the global literature on resilience in children and youth, highlighting the origins, methods, findings, controversies, and implications of resilience science for intervention, policy, and humanitarian action to prepare and protect young people against adversity.

HSEM 3413H. The Corporation in Question. (; 3 cr. ; A-F only; Periodic Fall)
In the wake of the financial crisis of 2008, anti-corporate rhetoric in the U.S. reached a crescendo. Corporations ? especially financial corporations ? were blamed for the crisis and the misery it left in its trail. But this anger was just a spike in a long tradition of distrust and suspicion of corporations. Their legitimacy has always been in question. One of the legacies sf this tradition is the rich lode of epithets applied by Americans to corporations and their bosses including robber barons, trusts, economic royalists, malefactors of great wealth, merchants of death. The portrayal of corporations in popular entertainment ? take Hollywood, for example -- is uniformly negative. The news media?s relations with corporations are predominantly adversarial. Running against corporations is a well-established way of running for elected public office. One of the events that did the most to crystallize public anger was the U.S. Supreme Court?s decision in Citizens United v. FEC (2010) that overturned limits on corporate spending to influence elections to federal office. In that case, a pro-business Court was widely seen as having used an arcane legal doctrine ? about legal personhood -- to hand a victory to corporate interests. Perhaps mistakenly, the issue became defined as whether corporate persons qualified for the same constitutional Free Speech rights as natural persons. A bumper sticker at the time read: ?I?ll believe a corporation is a person when the state of Texas executes one.? And presidential candidate Mitt Romney was greeted with derision when he told an audience at the Iowa State Fair that ?Corporations are people, my friend.? ? Of course they are,? he said. ?Everything corporations earn ultimately goes to people. Where do you think it goes?? The case offers an opportunity to examine both the nature of the corporation and the sources of the hostility to it. This Honors seminar will try to solve is ? why in America?? Why is it that, in probably the most thoroughly capitalist nation in the world, corporations are the most reviled? Of course, that the critics of corporations might answer that that is be precisely the point. Is it because it is in the United States that corporations have been left most free to plunder? The privileges in question are said to have enabled corporations to accumulate wealth. They include (1) limited liability, (2) legal personhood, (3) perpetual life, and (4) the free transferability of interests. You can see where these arguments are leading.

If corporations owe their very existence to government and /or if corporations? wealth is made possible by special privileges, then in return (it can be argued) society has the right to demand that corporations put the public interest ahead of the private interests of its shareholders. This is just a sampling of the controversies that swirl around the corporation. By studying these controversies, you will gain a far deeper and more multilayered understanding of the nature of the corporation and its place in our economy and society. But the debate(s) over the corporation will also shine a light on ourselves ? and our fears and hopes -- by means of our reactions to corporations.

HSEM 3414H. "Was the $84,000 price tag for a cure to hepatitis C corporate greed or a humanitarian triumph?". (; 3 cr. ; A-F only; Periodic Fall)
In the 1930s, antiwar activists used the epithet ?merchants of death? to denounce armaments manufacturers and their financiers. In a curious twist, today it is the turn of what might be called ?merchants of life? ? for-profit drug companies which have saved hundreds of millions of lives ? to be a pariah industry. The rage against drug companies is bipartisan. In the 2016 Presidential race, Trump said that drug companies were getting away with murder and Clinton charged that they were making a fortune out of people?s misfortune. The main complaint against drug companies is, of course, that they are price gougers. They abuse their government-enforced monopolies to charge extortionate prices that deny some Americans access to treatment for life-threatening illnesses, bankrupt middle-class Americans, and place intolerable strains on state budgets. This seminar will use a cure for hepatitis C (Sovaldi) to evaluate the claim that drug companies charge exorbitant prices and (optimistically?) to try to answer the question of what is a just price for a life-saving drug. Or, in other words, how should we price priceless goods?

HSEM 3415H. Are corporations persons? Can they pray? Controversial Supreme Court Cases. (CIV; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall)
Alexis de Tocqueville noted in 1835 that "[s]carcely any political question arises in the United States that is not resolved, sooner or later, into a judicial question." Rightly or wrongly, in the US many highly-charged issues ultimately get resolved in the Supreme Court. This seminar uses the courts as a lens through which to examine the relationship between business and society. It employs recent Court opinions in business cases like Citizens United and Masterpiece Cakeshop (ruling expected in summer 2018)--supplemented by transcripts of oral arguments, commentary in law reviews and legal blogs. The seminar should be of interest to pre-law students and all students who wish to gain a better understanding of the place of business in our society.

HSEM 3511H. Science Court: Strengthening Democracy through Rational Discourse. (CIV; 3 cr. ; A-F only; Periodic Fall)
Science Court is a mock trial system designed to promote democratic norms by investigating controversial societal issues, based on facts and sound scientific research, in front of a judge and jury of citizens. Students work together in three teams (Science, Legal and Media) to plan, research, execute, and report a SciCourt case.

HSEM 3636H. On Vaccines and Vaccinations: Needless Needles?. (; 3 cr. ; A-F only; Periodic Spring)
Human and animal health has been significantly advanced by the creation and application of vaccines to control infectious diseases. Nevertheless, there remain impactful diseases that cannot be controlled by vaccination for a variety of reasons, and global geopolitical factors often complicate public health initiatives. Further, vaccines have become controversial in some western societies, and debates have raged regarding potential negative aspects of routine vaccinations, scientific misconduct, and individual rights. This course will provide a scientific and historical background on immunity as a prelude to interdisciplinary discussion of vaccines and vaccinations. Seminars will combine didactic lectures with structured peer-to-peer interactions and debates. Students will consume both print and electronic media from multiple perspectives in order to reach their own conclusions regarding vaccines and vaccine safety. A final term paper will also inform peers as to various biological, public health, economic, regulatory, or cultural aspect of vaccines.

HSEM 3701H. Exercise is Medicine. (; 2 cr. ; A-F only; Periodic Spring)
Regular exercise is essential for good health and is important in the prevention and treatment of many diseases. The benefits of exercise and fitness, however, are frequently overlooked and under-emphasized in American health care delivery. Similar to other medical interventions, exercise has indications, contraindications, and potential complications and side effects. This seminar will explore these issues as well as related ones such as musculoskeletal concerns, nutrition, and sedentary physiology. Seminar format will include lectures, assigned readings, discussions, tests, and participant presentations. All seminar participants will research a different pre-approved aspect of exercise as medicine and present their findings at the seminar.

HSEM 3705H. Engineered Nanoparticles: A Savior or A Curse to Humanity. (ENV; 3 cr. ; A-F only; Periodic Fall)
Despite extensive commercial applications, a clear understanding of the adverse effects of Engineered Nanoparticles (ENPs) is lacking. A survey of the literature indicated the available information to be incomplete, independently unverified, and some may have been over-interpreted. Deep uncertainties currently pervade every step of the risk assessment of ENPs, making the procedure incapable of properly serving its purpose. The current conventional risk assessment strategies are not applicable for ENPs because of their unique properties and toxicity that may not conform to the norms of classic toxicology laws. Therefore, implementing some non-conventional tools in the risk assessment framework may be needed to reduce uncertainties and deliver accurate risk characterization of ENPs. This would enable current regulation to adequately reflect the risks of ENPs and protect the environment and the community. Therefore, the students registered for this seminar will learn some general features of ENPs, how the general public might be exposed to ENPs, and their potential health effects so that they can make an informed decision regarding the safe use of ENPs. With a serious information gap regarding ENPs safety, whether ENPs are a blessing or a curse is debatable.

HSEM 3715H. Doctors Behaving Badly: The Causes and Consequences of Medical Research Scandals. (; 3 cr. ; A-F only; Periodic Fall)
This course will take students on a tour of the deadliest and most controversial research scandals in recent medical history. Some of these episodes are well-known, such as the exploitation of poor African American men with syphilis in Tuskegee, Alabama, and the injection of the hepatitis A virus into mentally disabled children at the Willowbrook State School in New York. But such well-known cases represent only a small fraction of ethically contentious medical research. In the 1960s, for example, at the world-renowned Allen Memorial Institute at McGill University, the CIA paid psychiatric researchers to use mentally ill subjects in "mind control" experiments involving LSD, intensive electroconvulsive therapy, and drug-induced comas for up to three months at a time. In 1996, during a meningitis epidemic in Nigeria, researchers for the pharmaceutical company Pfizer conducted a study of an unapproved antibiotic on children without the informed consent of their parents, resulting in eleven deaths. In 2013, two neurosurgeons at the University of California-Davis were forced to resign after authorities discovered that they had intentionally implanted bacteria in the brains of cancer patients. Today, the University of Minnesota itself is under investigation after for the case of Dan Markingson, a mentally ill young man who nearly decapitated himself after allegedly being coerced into an AstraZeneca-funded psychiatric study. In this course, we will explore questions such as: What cultural and institutional forces allowed the scandals to occur? What were the best ethical arguments in favor of allowing the research to proceed? How were the scandals exposed? What was the role of investigative reporters, regulatory authorities, and whistleblowers? Should we have confidence that research abuse is not occurring today?

HSEM 3718H. Women's Reproduction: History, Policy, and the Health Care System. (DSJ; 3 cr. ; A-F only; Periodic Spring)
Understanding women's reproductive health requires consideration of the intersections of gender, race, class, culture, geography, economic status, and nation within a historical

and sociopolitical context. This course will build upon our current understanding of major conditions affecting the reproductive health of women, e.g. pregnancy, parenting, reproductive control, and menopause by raising challenges from a feminist perspective and encouraging expanded models that address the complexity of women's reproductive health in today's society.

HSEM 3801H. Modern China: Law, History, and Culture. (GP; 3 cr. ; A-F only; Periodic Fall)
This course will provide a comprehensive overview of law and politics of 20th and 21st-century China, in their historical and cultural contexts. It will introduce undergraduate students to distinctive paradigms and discursive patterns of law and politics in China, with the intention of fostering comparative analysis and critical thinking. The course will focus on high profile legal cases and major political events in the People's Republic of China today. The course will conclude by examining current issues in Chinese law from both sides, and by looking into China's argument for the "Beijing Consensus," essentially a new type of capitalism, without Western-style rule of law. The classes will progress by way of interactive discussion and critical readings of historical documents and legal texts. This course is designed to break through the traditional Chinese learning/ western learning dichotomy and interpret legal cases, political events, and cultural phenomena from a comparative perspective. It will bring to light the hidden rationales underscoring historical and ideological narratives, and will explain how frequent misunderstandings can occur when comparing cultures. Students will be encouraged to use critical thinking to argue, to test whether the incommensurability of paradigms can be reconciled, and to explore how different political systems and cultures can communicate with each other and exchange ideas effectively.

HSEM 3803H. The Politics of Legal Policy. (; 3 cr. ; A-F only; Periodic Fall)
The Politics of Legal Policy seminar will focus on several controversial issues involving courts and/or the types of issues they deal with. Class discussions will focus on five policy issues involving either the use and role of courts or areas in which the courts play a major role in policy administration: access to legal services, medical malpractice, scientific expert testimony, sexual predators, and judicial selection. Beyond these specific topics, students will select a specific policy issue to delve into on their own, and produce two papers: a short background memo on the nature of the issue and what is known about the facts that may make it an area in need of change, and a policy memo suggesting and advocating for possible changes. During the last three weeks, students will present their policy briefs to the seminar. The goal of the course is to understand the factual reality behind some major issues confronting the courts and the challenges of making policy changes to address these issues. Each of the five topics will be dealt with over two sessions of the seminar with the first session examining the issue from a policy perspective and the second session examining the issue from the perspective of differing political interests. Some of the sessions on policy change will involve students in the seminar debating the issue drawing upon the policy discussions from the previous week as well as their own research into the issue; other sessions may involve a guest speaker.

HSEM 3804H. Women who Rock (the Boat): Leadership and the Nobel Peace Prize. (GP; 3 cr. ; A-F only; Periodic Spring)
Lawyers, nuns, social workers, and schoolgirls have won the Nobel Peace Prize. In achieving this distinction, they hone their leadership skills to a fine art. They face personal danger, inner conflicts, social challenges, and pointed criticism. Succeeding despite their flaws, their ability to inspire courageous, innovative action cuts across age-groups, decades, borders, and nationality. Students in this Honors Seminar will touch and experience that inspiration. Students will intensively study several extraordinary women from different cultures who have won the Prize; e.g., Aung San Suu Kyi, Leymah Gbowee, Sharin Ebadi, Mother Teresa, and Malala Yousafzai. What characterizes their leadership? What have they accomplished and at what price? How do they survive their successes, failures, and controversies? How applicable are their approaches to a student's everyday life and future? This highly interactive class will examine these questions through biographies, videos, lectures, writing, student presentations, and group discussions.

HSEM 3805H. Revolutionary Paris since 1789. (; 3 cr. ; A-F only; Periodic Spring)
This seminar looks at issues of political and military conflicts in which France has been engaged. What constitutes the culture and society that may be seen in Paris; issues of French identity, including the diversity of the city of Paris, traditions of rebellion and resistance, the architectural monuments in the French capital, and spatial transformations that have come to Paris over the years since the French Revolution.

HSEM 3941H. The Nature of the Cosmos. (; 3 cr. ; A-F only; Periodic Spring)
One of the defining features of every human civilization is its collective understanding of how the natural phenomena present to all earth dwellers ? stars, planets, the earth and its transformations, plant, animal, and human life, etc. ? are conceptualized into systems of knowing. ?Cosmology? is the term we use to describe these shared understandings, and this interdisciplinary course proposes a comparative study of different cosmologies in different civilizations and historical periods. We will explore the nature of the cosmos by first examining the category itself and what is involved in trying to study cosmology comparatively with sensitivity to cultural difference. We will then look at some different understandings of the nature of the cosmos (i.e. cosmologies) offered by different peoples in the past and around the world. We will start with two ancient, non-Western cosmologies: the Sanskrit Hindu and Buddhist traditions and the traditions of the native peoples of North America. We will then examine the history of Western cosmological thinking by looking at Greco-Roman Antiquity, Medieval Christian and Islamic cosmology, and the birth of modern, scientific cosmology in the Scientific Revolution (Galileo, Newton, etc.). Our overall goal will not be to establish a single, absolute, and universal understanding of the cosmos, but, rather, to develop an understanding of the value and power of each of the different cosmologies we will encounter and the consequences that follow from accepting one or the other of them as our point of view. Ultimately this course should help you to think more deeply, reflectively, and humanistically about the cosmologies present in our own modern globalized society today.

HSEM 3953H. History and Science of Eating. (; 3 cr. ; A-F only; Periodic Fall)
Eating is both an everyday, mundane activity and a complex act that is linked to internal and external factors. Using the lenses of the humanities and sciences, we will explore topics from the full continuum of human eating. We move from hunger, starvation, and dieting to food choice and obesity, to eating? s relationship to contemporary politics, culture, and racial diversity. Overarching these topics are common themes of gender roles and changing cultural norms. We will investigate how and why diets vary as well as how food has emerged as a central political problem. Students will leave this class better able to judge evidence used in diet advice and with more understanding of their own beliefs about what they should eat.

Horticultural Science (HORT)

HORT 1001. Plant Propagation. (BIOL; 4 cr. ; Student Option; Every Fall & Spring)
Principles and techniques of propagating plants by seeds, cuttings, grafts, buds, layers, and division. Lectures on principles; labs on practice of various propagating techniques.

HORT 1003. Organic Gardening: From Balconies to Backyards. (; 3 cr. ; A-F only; Every Spring)
This fully online course focuses on the principles and practices of growing fruits, vegetables, and herbs with an ecological approach. You'll explore basic botany, soils and compost, species and variety selection, planning and design, container gardening, pest management, season extension, and more so you can approach your gardening projects with confidence.

HORT 1014. Edible Landscape. (TS; 3 cr. ; Student Option; Every Spring)
Tracing our relationship with edible landscapes traces to our hunting-gathering origins. Technological/social changes that have distanced us from our food. Integrating food plants into pleasing, sustainable, and edible landscapes in yards, neighborhoods, and cities.

HORT 1015. Woody and Herbaceous Plants. (; 4 cr. ; A-F only; Every Fall)
How to identify plants around the world. A few hundred of the most important cultivated

plants for northern climates, their distinguishing features, common uses, cultural specificities, and notable cultivars.

HORT 1031. Vines and Wines: Introduction to Viticulture and Enology. (; 3 cr. ; Student Option No Audit; Every Fall)
History of wine, principles of biology, culture of grapevine, fermentation, sensory evaluation of wine. prereq: 21 yrs of age by date of 1st class meeting restrictions: open enrollment to undergrads only, graduate students, masters students, and others will need instructor permission

HORT 1061. The Sustainable Lawn. (; 3 cr. ; Student Option; Every Fall)
Common turfgrasses. How to manage home lawn in sustainable way. Maintaining quality turf areas with reduced inputs.

HORT 1090. Topics In Horticulture. (; 1-4 cr. [max 14 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics vary with instructor. prereq: instr consent or department permission

HORT 1113. Floral Design. (; 3 cr. ; A-F only; Every Fall & Spring)
Design for use in commercial flower shops and at home. Principles and elements of design. Wedding arrangements. Corsages. Decorative use of dried materials.

HORT 2100. Agricultural Biochemistry. (3 cr. ; A-F only; Every Fall)
Chemical/biochemical foundation for agricultural disciplines. Concepts in organic, analytical and biological chemistry. Chemistry, metabolism, and development of plants. prereq: CHEM 1015/1017 or CHEM 1061 instr consent

HORT 3093. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

HORT 3094. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

HORT 3131. Student Organic Farm Planning, Growing, and Marketing. (3 cr. ; Student Option; Every Fall)
Organic fruit and vegetable production has been one of the fastest growing segments of the US economy for almost two decades, stimulating an overwhelming number of biological and ecological innovations to produce food using organic approaches. This course aims to increase student?s knowledge of ecological concepts as applied to managing organic systems, with an emphasis on soil nutrient cycles and plant-soil-microbe interactions that serve as the cornerstone of organic systems. Students in this course will learn tools needed to manage an organic diversified vegetable operation. The course consists of two components: a classroom session two times each week for 50 minutes, and a laboratory session that meets before class on Tuesdays for two hours. The classroom session is designed to help students think about concepts and principles that are useful in planning and managing production strategies on organic farms. We spend a significant amount of our time reviewing soil nutrient cycling and its critical importance for organic farms, including how to effectively use soil and organic nutrient inputs such as cover crops, manure and fertilizers, to provide vegetable crops with the nutrients they need to grow. We also learn about successful marketing strategies for organic produce. Finally, near the end of the semester we will discuss pest management, including both weeds and disease/insect pests, and compare different tillage options available to organic producers. What we learn is then applied to planning next year?s season of the UMN student organic farm. Throughout, we will use case studies, guest speakers, games, and active learning discussion approaches to move these classroom sessions "beyond the lecture" and allow students to engage with the material in a meaningful way. The lab is designed to allow a space to put into action some of the concepts students learn in lecture, including soil organic matter analysis, microgreen propagation, calculation of organic fertilizer rates, and operation of driven and walk-behind tractors.

HORT 3480. Topics in Sustainable Horticulture. (; 1-4 cr. [max 24 cr.] ; Student Option; Every Fall, Spring & Summer)
Various topics

HORT 4011. Common Medicinal Plants: Classification, Identification and Application. (3 cr. ; Student Option; Fall Odd Year)
Medicine and food share the same origin. There is a significantly increasing use of herbs in cooking as people keep seeking diverse food sources for health benefits. Accordingly, the number of herbal farms has been kept raising in the past decades, in which highly demanded herbs are grown as specialty crops. More and more herbs are distributed through grocery stores; many of the herbs, however, are still collected from the wild, which lead to medical cases involving in herb adulteration, contamination, or just simple misidentification. The goal of this course is to provide information of classifying, identifying and applying Herbs and herbal products for human health. This course focuses on the classification and identification of approximately 120 common medicinal plants, which covers 20 key medicinal plant families. With over 50 dry herbal samples being distributed to the class, participants of the class have the opportunity to learn essential skills of identifying and practicing fresh herbs and the processed herbal products. The information of herbal names (English, Chinese, scientific, and pharmaceutical names), morphology, properties (flavors), therapeutic actions, dosages, chemical components and cautions is provided for each herb. In addition, the knowledge of traditional Chinese medicine and herb uses, systems and methods for Chinese herbal classification, identification will also be introduced. Together, this course is set to provide useful information to students who study plant science, agriculture, pharmacy, and food systems.

HORT 4061W. Turfgrass Management. (WI; 3 cr. ; A-F only; Fall Even Year)
Biology of turfgrasses, ecology of landscape systems. Installation, management, and culture of turfgrass communities and landscape plant systems. Sod production, industrial grounds, lawn care, park/recreation areas, athletic field/ business management. Case studies. prereq: 1001 or instr consent

HORT 4062. Turfgrass Weed and Disease Science. (; 3 cr. ; A-F only; Fall Odd Year)
Turfgrass weed/disease problems. How to deal with these problems using an integrated approach. Biology, identifying features, and management strategies for several turfgrass diseases/weeds. How to apply IPM principles to turfgrass weed/disease problems.

HORT 4063. Turfgrass Science. (; 3 cr. ; A-F only; Every Spring)
Ecology, physiology, and theory of turf population dynamics. Specialized management situations such as golf course, commercial sod production, and fine turf athletic settings. prereq: 4061

HORT 4071W. Applications of Biotechnology to Plant Improvement. (WI; 4 cr. ; A-F or Audit; Spring Odd Year)
Fundamentals of plant genetics, molecular biology, and plant biotechnology. Emphasizes their applications to plant propagation and crop improvement. Hands-on experience with crossing plants, analysis of phenotypes and segregation data, plant tissue culture/ transformation, gel electrophoresis, molecular cloning, use of genetically modified crops. Principles of ethics/citizenship to decision making in plant genetics and biotechnology. Debate, discussion, writing exercises. prereq: [Biol 1009 or equiv or grad student], instr consent

HORT 4096W. Professional Experience Program: Internship. (WI; 2 cr. ; A-F only; Every Fall)
Professional experience in horticultural businesses, government agencies, arboreta, and botanical gardens achieved through a

supervised practical experience. Students produce a final publication focusing on writing for lay audiences. Project starts before the internship begins and ends approximately two months after the internship is complete. prereq: CFANS undergrad

HORT 4110. Spring Flowering Bulbs. (1 cr. ; A-F only; Spring Odd Year)
Geophytes are early harbingers of spring. In this course we will examine the variety of herbaceous perennial spring-flowering crops with underground storage organs (geophytes). As spring progresses, different genera and species predominate in the flowering landscape. In contrast, greenhouse production of potted plant and cut flower geophytic crops can be simultaneous rather than sequential. This course will consist of hands-on taxonomic identification of geophyte crops, their uses in landscape design, and production essentials. The laboratory will be hands-on, experiential learning with many visits of outdoor landscape, gardens, production greenhouses, and interiorscapes.

HORT 4111. Prairie Perennials and Grasses. (1 cr. ; A-F only; Fall Odd Year)
Students will learn to identify over 100 plants, predominately native fall perennials and grasses at the Minnesota Landscape Arboretum. Class meeting dates at the Arboretum are listed in the Class Detail under Class Search. prereq: HORT 1015

HORT 4112. Flowering Trees and Shrubs. (1 cr. ; A-F only; Periodic Spring)
Need an excuse to spend a few hours outside at the height of the spring flowering season? Want to spend more time amidst the expansive and beautiful University of Minnesota Landscape Arboretum plant collections? Do you want to be able to identify more woody landscape plants, in flower? Here's your chance to expand your plant identification skills and learn the names and flowering characteristics for approximately 150 woody landscape plants. Flowering Trees and Shrubs is a practitioners course, designed to give you a hands-on opportunity to learn to identify woody landscape trees, shrubs, ground covers, and vines, including the common and scientific names for each. We will study the plants as family assemblages, noting features common to each family which will assist you in identifying unknown plants in Minnesota and other geographical locations in the future. In addition to identification; common landscape uses, cultural specificities,problems, and notable cultivars will be highlighted.

HORT 4113. Identifying Plants for the Home and Garden: Garden, Annual, and Potted Plants. (1 cr. ; A-F only; Spring Even Year)
There are many strange and usual plants that are grown as horticulture crops, ornamentals, or collectable plants. Venus fly traps, bulbs, orchids, vines, cacti and succulents. Students will learn how to identify these crops, learn their common and scientific names, and how these plants have adapted physiologically to survive stressful conditions. At least 100 different crops will be covered during this course (approximately 20 per class). Students will be expected to be able to identify these plants from images, whole plants, and/or plant parts. Information will be presented and/or learned using lectures, field trips, exercises, and homework, and a course project. Students will also grow potted herbs/vegetables crops as part of this class.

HORT 4141W. Scheduling Crops for Protected Environments. (WI; 4 cr. ; A-F only; Every Spring)
The purpose of this course is to acquaint students with the identification, scheduling and cultural requirements of commercially produced potted plants, gain experience in growing them, and conduct experiments to understand current problems. The course builds on knowledge obtained in Hort 1001 or Hort 1015, by adding in additional factors of plant growth coupled with scheduling and growing a of crops which commercial growers would experience. The role of ornamental plants in the human environment will be discussed, with special emphasis on future issues. Writing is an integral component of this course; one major paper is revised and expanded multiple times plus other course writing fulfill the writing intensive requirement. Through the use of interactive learning, field trips, written assignments, and in-class discussions students learn crop requirements and the interactions between the marketing distribution system of breeders, producers, distributors, growers, retailers, and consumers.

HORT 4461. Horticultural Marketing. (; 3 cr. ; A-F only; Every Spring)
Major areas in horticultural marketing. Difference between horticultural products and commercial commodities. Core marketing components that should be used by every small horticultural business. Approaches to consumer research.

HORT 5007. Advanced Plant Propagation. (3 cr. ; Student Option; Spring Odd Year)
Control of growth/development in sexual/asexual reproduction of plants. Effects of environment, plant growth substances. Protocols on dormancy, origin, development of adventitious structures. Specialized propagation techniques. Lecture, lab. prereq: 1001 or BIOL 2022

HORT 5011. Common Medicinal Plants: Classification, Identification, and Application. (; 3 cr. ; Student Option; Fall Odd Year)
More than 200 common medicinal plants from 80 plant families. Medicinal plant identification/classification. Methods/philosophy of applying herbs for health and disease prevention. Practice with about 90 herb samples.

HORT 5012. Common Medicinal Plants: Growing and Processing. (3 cr. ; Student Option; Fall Even Year)
How to grow, process, store 40 common herbs/herbal products.

HORT 5023. Public Garden Management. (2 cr. ; Student Option; Every Spring)
Overview of knowledge/skills necessary to manage a public garden. History of public gardens. Development of mission and vision. Planning and design. Operations. Education and research. Fund raising, business management, personnel, marketing, conservation.

HORT 5031. Fruit Production and Viticulture for Local and Organic Markets. (3 cr. ; A-F or Audit; Fall Odd Year)
Principles of fruit production. Temperature fruit crops. Integrated management of fruit cropping systems. Site selection, cultural management practices, taxonomic classification, physiological/environmental control of plant development. Writing. prereq: [1001, 3005] or instr consent

HORT 5032. Organic Vegetable Production. (3 cr. ; A-F or Audit; Spring Odd Year)
Integrated management of vegetable cropping. Site selection/environment, seed/stand establishment, cultural management, commodity use, handling. Types of vegetable cultivars. Breeding, physiological/environmental control.

HORT 5058. Plant Cytogenetics. (3 cr. ; A-F or Audit; Spring Odd Year)
Hybrid science of plant cytology/genetics. History, concepts, current research, technological development in plant cytogenetics. Function, movement, number/structure of chromosomes. Methods/application of chromosome modification in plant improvement. prereq: [HORT/AGRO 4401, BIOL 4003] or instr consent

HORT 5061. Advanced Turfgrass Science. (2 cr. ; Student Option; Every Spring)
For advanced students in turf with career objectives in professional turf management. Emphasis on ecology, physiology, theory of turf population dynamics and specialized management situations such as golf course, commercial sod production, and fine turf athletic settings. prereq: 4061

HORT 5071. Ecological Restoration. (4 cr. ; Student Option; Every Fall)
Ecological/physiological concepts for revegetation of grasslands, wetlands, forests, and landscapes. Plant selection, stand establishment/evaluation. State/federal programs that administer restoration/reclamation. Field trips. prereq: [One college course in ecology, one college course in [plant science or botany]] or instr consent

HORT 5093. Directed Study. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

HORT 5094. Directed Research. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)

An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

HORT 5131. Student Organic Farm Planning, Growing, and Marketing. (; 3 cr. ; Student Option; Every Spring)
Students plan/implement cropping/marketing strategies for organic produce/flowers from Student Organic Farm on St. Paul campus. prereq: 1001 or AGRO 1101 or AGRO 1103 or BIOL 1001 or BIOL 1009 or instr consent

Housing Studies (HSG)

HSG 3462. Housing and Community Development. (; 3 cr. ; A-F or Audit; Every Fall)
Meaning/significance of neighborhood/community, residential neighborhood change, impact of housing on neighborhood conditions. Gentrification, displacement, racial segregation, suburbanization, community-based revitalization.

HSG 4160H. Honors Capstone Project. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Individualizes honors experience by connecting aspects of major program with special academic interests. prereq: Housing studies honors

HSG 4193. Directed Study in Housing Studies. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in Housing Studies under tutorial guidance. prereq: Undergrad, instr consent

HSG 4196. Internship in Housing Studies. (; 1-4 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Supervised work experience relating activity in business, industry, or government to the student's area of study. Integrative paper or project may be required. prereq: Completion of at least one-half of professional sequence, plan submitted/approved in advance by [adviser, internship supervisor], written consent of faculty supervisor, instr consent

HSG 4461. Housing Development and Management. (; 4 cr. ; A-F or Audit; Every Spring)
Housing development process/financing. Management of multifamily housing. Emphasizes housing for low-income families/specific populations (e.g., older residents).

HSG 4465. Housing in a Global Perspective. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Demographic changes, economic connections, and public policies for housing around the world. Sustainable development, rural-to-urban migration, land distribution, economic globalization, and civil conflict and war.

HSG 4467W. Housing and the Social Environment. (WI; 4 cr. ; A-F or Audit; Every Fall)
Housing choices in context of social environment. Emphasizes special needs of elderly, disabled, minorities, large families, female-headed households, and low-income households. Students conduct a post-occupancy evaluation of housing.

HSG 5170. Topics in Housing Studies. (; 1-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
In-depth investigation of a single specific topic, announced in advance.

HSG 5193. Directed Study in Housing Studies. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in Housing Studies under tutorial guidance. prereq: Jr or sr or grad student

HSG 5462. Housing and Community Development. (3 cr. ; A-F only; Every Fall)
An examination of the linkages between housing and community development. The process of residential neighborhood change and the impact of housing on neighborhood conditions is explored. The course considers theories of neighborhood change, trends in residential development, and concepts of community building in the built environment. Private sector, community-based, and governmental efforts at neighborhood revitalization and their effectiveness will be studied. Related issues such as racial discrimination in housing, gentrification and the displacement of low-income residents are discussed. Course includes an engaged group project to access housing and amenities in a specified neighborhood.

HSG 5463. Housing Policy. (; 3 cr. ; A-F or Audit; Every Spring)
Institutional/environmental settings that make up housing policy in the United States. Competing ideas about solving housing problems through public intervention in the market. Federal/local public sector responses to housing problems. prereq: [[2401 or DHA 2401], [2463 or DHA 2463]] or instr consent

HSG 5467. Housing and the Social Environment. (; 4 cr. ; A-F or Audit; Every Fall)
Housing choices in context of social environment. Emphasizes special needs of elderly, disabled, minorities, large families, female-headed households, and low-income households. Students conduct a post-occupancy evaluation of housing.

HSG 5471. Housing Studies Certificate Seminar. (; 2 cr. ; A-F or Audit; Spring Odd Year)
Integrative seminar and "capstone" to Certificate program. Students prepare an individual career plan that focuses on application of housing studies to community/workplace. prereq: Admitted to Housing Studies Certificate Prog

Human Factors (HUMF)

HUMF 5001. Foundations of Human Factors/Ergonomics. (3 cr. ; A-F or Audit; Periodic Fall)
Variability in human performance influenced by interaction with designs of machines/tools, computers/software, complex technological systems, jobs/working conditions, organizations, sociotechnical institutions. Conceptual, empirical, practical aspects of human factors/ergonomics. prereq: Grad HumF major or minor or instr consent

HUMF 5193. Directed Study in Human Factors and Ergonomics. (1-4 cr. [max 8 cr.] ; A-F only; Every Fall, Spring & Summer)
Independent study in human factors/ergonomics under tutorial guidance. prereq: instr consent

HUMF 5211. Human Factors and Work Analysis. (; 4 cr. ; A-F or Audit; Every Fall)
Human factors engineering (ergonomics), methods engineering, work measurement. Displays, controls, instrument layout, supervisory control. Anthropometry, work physiology, biomechanics. Noise, illumination, toxicology. Operations analysis, motion study, time standards.

HUMF 5874. Service Design: Designing complex systems to improve service delivery. (4 cr. ; A-F or Audit; Every Spring)
Real world service delivery problems. Perceptual/cognitive strengths/weaknesses addressed when designing systems. prereq: Grad student or instr consent

Human Resources/Indus Rel (HRIR)

HRIR 3021. Human Resource Management and Strategy. (3 cr. ; A-F only; Every Fall, Spring & Summer)
This course will focus on the people side of business. We will look at how, through managing and leading people, we can create an engaged, productive workforce in order to achieve organizational strategic objectives. The content of this course is complementary to any major or minor. Major topics in this course: - Managing people in an ethical, legal way that is aligned with corporate strategy and helps organizations reach their goals; - Successfully attracting, recruiting, and selecting talented people; - Creating interesting, engaging jobs and giving meaningful feedback in order to retain great employees; - Rewarding and motivating people through intrinsic and extrinsic methods to encourage the most effective and "right" kind of employee behaviors to create an engaged, productive workforce through people strategies and practices. prereq: ECON 1101, ECON 1102, PSY 1001

HRIR 3021H. Honors: Human Resource Management and Strategy. (; 3 cr. ; A-F only; Every Spring)
Human capital is an essential role in today?s organizations. If you plan to be a manager or organizational leader, or if you plan to major or minor in HR, this course is an essential introduction to the role of human resource management in organizations. In this class you will learn: How to recruit and select the

best people. How to evaluate performance and give employees feedback. How to help individuals improve when their performance is subpar, and how to conduct terminations when those efforts do not work. Methods that are used to develop individuals so they can move into higher leadership roles. How to examine turnover problems and retain employees. How large companies set pay levels to ensure internal and external equity. Recent issues around worker rights and unions. The basics of employment law. Contemporary human resources issues that employers are dealing with, such as labor market shortages and sexual harassment policies. This class is for honor?s students only. prereq: ECON 1101, ECON 1102, PSY 1001

HRIR 3031. Staffing and Selection: Strategic and Operational Concerns. (2 cr. ; Student Option; Every Spring)
Introduction to theory/practice of staffing decisions. Recruitment, selection, promotion, demotion, transfer, dismissal, layoff, retirement. Staffing analyzed from strategic/operational perspectives. Legal issues.

HRIR 3032. Training and Development. (2 cr. ; Student Option; Every Spring)
Introduction to theory/research/practice of design/implementation/evaluation of employee training/development programs. Training as process for influencing individual/organizational outcomes.

HRIR 3041. Organizational Behavior: Work Motivation and Workplace Dynamics. (2 cr. ; Student Option; Every Fall)
The purpose of this course is to understand both the impact and experience of the individual in an organizational setting. This course will discuss the influence that individual differences and behaviors play within an organization, focusing on the employee as the key factor through which organizations function and grow. An employer?s success is largely attributable to the motivation and performance of those they employ. The factors that influence both their motivation and performance will be the focus of our content. We will explore topics such as personality, values, perceptions, and diversity among others. Each topic covered will enrich our understanding of the complex relationship between the individual and the organization.

HRIR 3042. Organizational Behavior: Groups and Teams. (2 cr. ; Student Option; Every Fall)
The purpose of this course is to understand both the impact and experience of the individual in an organizational setting. It will look at the influence that individual differences and behaviors play within an organization, focusing on the employee as the key factor through which organizations function and grow. An employer?s success is largely attributable to the motivation and performance of those they employ. The factors that influence both their motivation and performance will be the focus of our content. The course will explore topics such as personality, values, perceptions, and diversity among others. Each topic covered will enrich our understanding of the complex relationship between the individual and the organization

HRIR 3051. Compensation: Theory and Practice. (2 cr. ; Student Option; Every Fall)
Introduction to compensation/reward programs in employing organizations. Theories of organizational/employee behavior used in design/implementation of pay programs. Design, implementation, job evaluation, salary surveys, skill-based pay, merit-based pay, other compensation programs.

HRIR 3071. Union Organizing and Labor Relations. (2 cr. ; Student Option; Every Spring)
Analysis of labor unions, employee associations, collective bargaining within framework of contemporary American legislation/policy. Forming/organizing labor unions. Management strategies/responsibilities, historical influences on policy/practice in private/public sectors.

HRIR 3072. Collective Bargaining and Dispute Resolution. (2 cr. ; Student Option; Every Spring)
Collective bargaining, contract administration, grievance processing, interest/rights arbitration, strikes, related policies/practices of employers, workers, labor unions in private/public sectors. Impact/transfer of practices to non-union sector.

HRIR 3111. Human Resource Analytics. (2 cr. ; A-F only; Every Fall)
This course is designed to provide students with opportunities to develop data manipulation, analysis, and visualization skills using Excel and Tableau by taking a data driven approach to core HR areas, including recruitment, compensation, talent development, and turnover. In the course students will get exposure to working with a variety of data sources, including administrative records, survey, and text-based data from resumes and interviews as well as an introduction to predictive analytics tools. Emphasis will be placed on data visualization and communication of findings to practitioners. Prerequisites: HRIR3021 or HRIR3021H or IBUS 3021 and SCO 2550 or equivalent statistics course

HRIR 4100W. HRIR Capstone: Personal and Organizational Leadership. (WI; 4 cr. ; A-F only; Every Spring)
Leadership as important competency for HR professionals. Reflection/growth of personal leadership skills. Techniques, strategies, philosophies to develop leadership acumen of individuals within organizations. Leadership research. prereq: 3021, 6 HRIR credits, [CSOM or HRD junior or senior or dept consent]

HRIR 5000. Topics in HRIR. (; 2 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics in human resources/industrial relations. HRIR MA student must register A-F, 3021, [CSOM or HRD junior or senior or dept consent]

HRIR 5222. Creating and Managing Diversity and Inclusion. (2 cr. ; Student Option; Every Fall & Spring)
This course covers the challenges and rewards associated with managing today?s increasingly diverse workforce. Diversity has the potential to benefit employees and organizations alike, yet the benefits of diversity are only realized in organizations with effective diversity management practices. In this course, we will discuss the power of inclusion as it relates to the employee experience. We will study effective strategies for building diverse and inclusive companies, and will address the barriers that can often exist. We will look at approaches to organizational design that limit unconscious bias and produce more objective decisions across the employee experience? from engaging and hiring candidates to retaining employees and helping them thrive. Finally, we will dive into how to create inclusive cultures and a sense of belonging, across local and global contexts. Student engagement and willingness to share diverse perspectives are critical to the success of this course. prereq: HRIR MA student must register A-F, 3021, [CSOM or HRD junior or senior or dept consent]

HRIR 5252. Employment and Labor Law for the HRIR Professional. (2 cr. ; Student Option; Every Fall & Spring)
Application of statutes/case law to work settings. Civil rights/equal opportunity. Discrimination/harassment. Compensation/ benefits. Employee protection/privacy. Labor relations. Emphasizes application/ability to recognize legal aspects of HRIR issues. prereq: HRIR MA student must register A-F, 3021, [CSOM or HRD junior or senior or dept consent]

HRIR 5442. Employee Performance Management: Strategies, Systems, and Skills. (2 cr. ; Student Option; Every Fall)
Performance management strategies. Components of effective performance management systems. Alignment with HR strategy. Integration with HR practices. Measurement/appraisal. Feedback, coaching. Legal issues. prereq: HRIR MA student must register A-F, 3021, [CSOM or HRD junior or senior or dept consent]

HRIR 5443. Principles of Effective Coaching. (2 cr. ; Student Option; Every Fall)
Skills/competencies required to coach, mentor, develop employees/leaders. Managing coaching process. Planning coaching relationship. Coaching as leadership development strategy. Coaching executives. prereq: HRIR MA student must register A-F, 3021, [CSOM or HRD junior or senior or dept consent]

HRIR 5655. Public Policies on Work and Pay. (3 cr. ; Student Option; Every Spring)
Analysis of public policies regarding employment, unions, labor markets. Public programs affecting wages, unemployment, training, worker mobility, security, quality of work life. Policy implications of changing nature of work. prereq: HRIR MA student must register A-F, ECON 1101, [CSOM or HRD junior or senior or dept consent]

HRIR 5662. Personnel Economics. (2 cr. ; Student Option; Every Fall & Spring)

Application of economic tools to issues in human resources/industrial relations. Incentives/imperfect information. Incentive-based pay. Promotions/tournaments. Human capital/training. Screening/signaling. Applications/limitations. prereq: Prereq-HRIR MA student must register A-F, ECON 1101, [CSOM or HRD junior or senior or dept consent]

HRIR 5992. Independent Study in Human Resources and Industrial Relations. (1-8 cr. ; Student Option; Every Fall, Spring & Summer)
Individual readings or research topics. prereq: dept consent or instr consent

Industrial Engineering (IE)

IE 1101. Foundations of Industrial and Systems Engineering. (4 cr. ; A-F only; Every Fall)
History/development of industrial/systems engineering, operations planning, quality control, human factors, resource management, financial engineering, facility location/layout, optimization, probabilistic/stochastic models, simulation, project management. prereq: [MATH 1372 or equiv], CSE student

IE 2021. Engineering Economics. (4 cr. ; A-F only; Every Fall)
Cost/design process, cost estimation models, cash flow analysis, interest rate models, time value of money, evaluation of projects, internal rate of return, depreciation/income taxes, price changes/inflation, capital budgeting, decision making under uncertainty. prereq: [MATH 1372 or equiv], CSE student

IE 3011. Optimization I. (4 cr. ; A-F only; Every Fall)
Optimization models, data/solutions, linear programming, simplex method, duality theory, sensitivity analysis, network optimization models, integer programming. prereq: 1101, MATH 2374, MATH 2142, Upper Division CSE

IE 3012. Optimization II. (4 cr. ; A-F only; Every Spring)
Classifying optimization models. Modeling binary variables, branch and bound. Shortest path. Minimum spanning tree. Nonlinear programming, global and local optima, optimality conditions. Algebraic modeling languages and optimization solvers. prereq: 3011, ISyE major

IE 3013. Optimization for Machine Learning. (4 cr. ; A-F only; Every Fall)
Machine learning has been widely used in areas such as computer vision, search engines, speech recognition, robotics, recommendation systems, bioinformatics, social networks, and finance. It has become an important tool in prediction and data analysis. This course introduces some fundamental solution methods for solving various optimization models arising in the context of machine learning.

IE 3041. Industrial Assignment I. (; 2 cr. ; A-F or Audit; Every Spring)
Industrial work assignment in engineering intern program. Evaluation based on student's formal written report covering semester's work assignment. prereq: ISyE upper division, registration in ME co-op program

IE 3521. Statistics, Quality, and Reliability. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Random variables/probability distributions, statistical sampling/measurement, statistical inferencing, confidence intervals, hypothesis testing, single/multivariate regression, design of experiments, statistical quality control, quality management, reliability, maintainability. prereq: MATH 1372 or equiv

IE 3522. Quality Engineering and Reliability. (4 cr. ; A-F only; Every Spring)
Quality engineering/management, economics of quality. Statistical process control, reliability, maintain ability, availability. prereq: 3521, MATH 2142, MATH 2374, ISyE major

IE 3553. Simulation. (4 cr. ; A-F only; Every Fall)
Introduction to techniques/tools of stochastic simulation. Applications from finance/insurance risk. Problems in inventory/queueing. prereq: CSCI 1133, IE 3521, ISyE major

IE 4011. Stochastic Models. (4 cr. ; A-F only; Every Spring)
Models for describing/evaluating random systems. Formulating/analyzing stochastic models for business. Discrete-time/continuous-time Markov chains. Poisson processes. Markovian/non-Markovian queueing theory. Inventory management, manufacturing, reliability. prereq: 3521, MATH 2373, MATH 2374, ISyE major

IE 4041W. Senior Design. (WI; 4 cr. ; A-F only; Every Spring)
Work in small teams to address open-ended problem in industrial/systems engineering. Teams work with faculty or industry advisers. Project, midterm/final presentation, final report. prereq: 1101, 2021, 3012, 3522, 3553, 4011, 4511, 4541W, 3521, 4551, ISyE senior

IE 4043W. Industrial Assignment II. (WI; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Solution of system design problems that require developing criteria, evaluating alternatives, and generating a preliminary design. Final report emphasizes design communication and describes design decision process, analysis, and final recommendations. prereq: 3041

IE 4044. Industrial Assignment III. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering co-op program. Evaluation based on student's formal written report covering semester work assignment. prereq: IE 4043, registration in ME co-op program

IE 4091. Independent Study. (1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Independent study of topic(s) involving industrial and systems engineering and operations research.

IE 4094. Directed Research. (1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Research with faculty adviser on a topic in industrial and systems engineering or operations research. Student contacts adviser to develop project description prior to registering for course.

IE 4096. Curricular Practical Training. (1 cr. [max 3 cr.] ; S-N only; Every Fall, Spring & Summer)
Industrial work assignment in engineering intern program. Evaluation based on student's formal written report covering semester's work assignment.

IE 4511. Human Factors. (4 cr. ; A-F only; Every Fall)
Human factors engineering (ergonomics), methods engineering, work measurement. Human-machine interface: displays, controls, instrument layout, supervisory control. Anthropometry, work physiology/biomechanics. Work environmental factors. Methods engineering. prereq: ISyE senior

IE 4541W. Project Management. (WI; 4 cr. ; A-F only; Every Fall)
Introduction to engineering project management. Analytical methods of selecting, organizing, budgeting, scheduling, and controlling projects. Risk management, team leadership, program management. prereq: ISyE senior

IE 4551. Production and Inventory Control. (4 cr. ; A-F only; Every Spring)
Methods for managing production, inventory, supply chain operations. Demand forecasting, inventory control, production planning/scheduling, supply chain coordination, manufacturing flow analysis. Implications of emerging technologies, business practices, government regulations. prereq: 3011, 3521, ISyE major

IE 4894. Directed Senior Honors Thesis. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Writing thesis under direction of ISyE faculty member.

IE 5080. Topics in Industrial Engineering. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
Topics vary each semester.

IE 5111. Systems Engineering I. (; 2 cr. ; A-F or Audit; Every Fall)
Overview of systems-level thinking/techniques in context of an integrated, design-oriented framework. Elements of systems engineering process, including lifecycle, concurrent, and global engineering. Framework for engineering large-scale, complex systems. How specific techniques fit into framework. prereq: CSE upper div or grad student

IE 5113. Systems Engineering II. (; 4 cr. ; A-F or Audit; Every Spring)
Systems engineering thinking/techniques presented in 5111. Hands-on techniques applied to specific problems. Topics pertinent to effectiveness of design process. Practices and organizational/reward structure to support collaborative, globally distributed design team.

IE 5441. Financial Decision Making. (4 cr. ; A-F only; Every Fall, Spring & Summer)
Cash flow streams, interest rates, fixed income securities. Evaluating investment alternatives,

capital budgeting, dynamic cash flow process. Mean-variance portfolio selection, Capital Asset Pricing Model, utility maximization, risk aversion. Derivative securities, asset dynamics, basic option pricing theory. prereq: CSE upper div or grad student

IE 5511. Human Factors and Work Analysis. (; 4 cr. ; A-F or Audit; Every Fall)
Human factors engineering (ergonomics), methods engineering, and work measurement. Human-machine interface: displays, controls, instrument layout, and supervisory control. Anthropometry, work physiology and biomechanics. Work environmental factors: noise, illumination, toxicology. Methods engineering, including operations analysis, motion study, and time standards. prereq: Upper div CSE or grad student

IE 5513. Engineering Safety. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Occupational, health, and product safety. Standards, laws, and regulations. Hazards and their engineering control, including general principles, tools and machines, mechanics and structures, electrical safety, materials handling, fire safety, and chemicals. Human behavior and safety, procedures and training, warnings and instructions. prereq: Upper div CSE or grad student

IE 5522. Quality Engineering and Reliability. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Quality engineering/management, economics of quality, statistical process control design of experiments, reliability, maintainability, availability. prereq: [4521 or equiv], [upper div or grad student or CNR]

IE 5524. Process Transformation through Lean Tools. (2 cr. ; A-F only; Every Fall)
Lean is a systematic methodology that improves processes by identifying and removing sources of waste in an organization. Lean tools, such as value stream mapping, Kaizen, kanban systems, visual systems, and 5S, improve processes by identifying and removing sources of waste. In this course, you will learn and utilize key Industrial Engineering methodologies to identify opportunities, prioritize these opportunities, develop solutions and create cost models of the solutions effectiveness. Applications of lean process improvement in areas such as manufacturing, healthcare, service operations, and business processes will be considered.

IE 5531. Engineering Optimization I. (; 4 cr. ; Student Option; Every Fall)
Linear programming, simplex method, duality theory, sensitivity analysis, interior point methods, integer programming, branch/bound/dynamic programming. Emphasizes applications in production/logistics, including resource allocation, transportation, facility location, networks/flows, scheduling, production planning. prereq: Upper div or grad student or CNR

IE 5532. Stochastic Models. (4 cr. ; Student Option; Every Fall)
Introduction to stochastic modeling and stochastic processes. Probability review, random variables, discrete- and continuous-time Markov chains, queueing systems, simulation. Applications to industrial and systems engineering including production and inventory control. prereq: Undergraduate probability and statistics. Familiarity with computer programming in a high level language.

IE 5533. Operations Research for Data Science. (3 cr. ; A-F only; Periodic Fall)
This course combines data, modeling, and decision-making to provide students with experience solving practical problems in a variety of application areas, including healthcare and medical decision-making, supply chains and e-commerce, and finance and revenue management. To this end, case studies will be used to illustrate the sequence of problem definition, data analysis, model building, and decision support. The example problems are realistic in terms of size and complexity and the data sets are realistic in that the quality of the data is less-than-perfect. The first part of the course focuses on deterministic models while the second part of the course covers stochastic models. A high-level programming language such as R is used for data manipulation and for predictive analytics. An algebraic modeling language such as AMPL is used for models that require linear/integer programming. The solutions and their sensitivity to changes in parameters are interpreted to aid decision-makers. Throughout the course, the methodologies are kept in perspective with the overall goal of making better decisions.

IE 5541. Project Management. (; 4 cr. ; A-F only; Every Fall & Spring)
Introduction to engineering project management. Analytical methods of selecting, organizing, budgeting, scheduling, and controlling projects, including risk management, team leadership, and program management. prereq: Upper div or grad student

IE 5545. Decision Analysis. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Single-person and group decision problems. Structuring of decision problems arising in personal, business, and public policy contexts. Decision-making under uncertainty, value of information, games of complete information and Nash equilibrium, Bayesian games, group decision-making and distributed consensus, basics of mechanism design. prereq: 3521 or equiv

IE 5551. Production Planning and Inventory Control. (; 4 cr. ; Student Option; Every Fall & Spring)
Inventory control, supply chain management, demand forecasting, capacity planning, aggregate production and material requirement planning, operations scheduling, and shop floor control. Quantitative models used to support decisions. Implications of emerging information technologies and of electronic commerce for supply chain management and factory operation. prereq: CNR or upper div or grad student

IE 5553. Simulation. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Discrete event simulation. Using integrated simulation/animation environment to create, analyze, and evaluate realistic models for various industry settings, including manufacturing/service operations and systems engineering. Experimental design for simulation. Selecting input distributions, evaluating simulation output. prereq: Upper div or grad student; familiarity with probability/statistics recommended

IE 5561. Analytics and Data-Driven Decision Making. (4 cr. ; Student Option; Every Spring)
Hands-on experience with modern methods for analytics and data-driven decision making. Methodologies such as linear and integer optimization and supervised and unsupervised learning will be brought together to address problems in a variety of areas such as healthcare, agriculture, sports, energy, and finance. Students will learn how to manipulate data, build and solve models, and interpret and visualize results using a high-level, dynamic programming language. Prerequisites: IE 3521 or equivalent; IE 3011 or IE 5531 or equivalent; proficiency with a programming language such as R, Python, or C.

IE 5773. Practice-focused Seminar. (1 cr. ; S-N or Audit; Every Fall)
Industry and academic speakers, topics relevant to analytics practice.

IE 5801. Capstone Project. (4 cr. ; A-F only; Every Fall)
Students work on ISyE Analytics Track capstone project in small teams of two or three. Projects are supervised by industry mentor and faculty adviser. Projects involve application of techniques from Analytics Track curriculum. Prerequisites: ISyE Analytics Track MS Student; IE 5531; IE 5561; Stat 5302; CSci 5521 or 5523.

Information Networking (INET)

INET 1001. Survey of Information Technology. (1 cr. ; A-F or Audit; Every Fall & Spring)
Major classifications of information technology (IT). Business uses with focus on data, systems, networks. IT as career, including degrees, certifications, trends, opportunities, lifelong learning.

INET 3011W. Social Impact of Information Technology. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Information and Communication Technology (ICT) has a profound impact on society in many different ways. Some of these ways -- for example, in a business or in terms of specific employment activities -- you will study in other courses; INET 3011W asks you to think about the ethical decision-making that goes into ICT activities and their impact within and beyond the ICT world. What ethical choices must individuals make when designing new software or applications? What sorts of problems and competing interests can arise during work in organizational teams or across an industry, and how can they be resolved? More fundamentally, what impact does ICT, along with the ethical decisions made by those

working in the field, have on the larger world -- the communities in which it is deployed, the environment on which it operates, and the governments and economies in which it plays an ever-increasing role? To address these and related questions, INET 3011W will require you to examine ICT's impact from three different perspectives: (1) the individual decision-maker; (2) the team or organizational dynamic; and (3) the stakeholders at the social, and even global, level. prereq: None

INET 3065. Computer Security for the Business Professional. (; 3 cr. ; Student Option; Every Fall)
Computer security without technical jargon. Real-world examples and issues. Practices for safe, secure, and ethical computer use: virus, worm, and malware detection and elimination; antivirus and firewall selection; secure Internet purchasing; social networking sites; web page setup. prereq: Basic computer/Internet navigation skills; laptop with browser and MS Word or equivalent.

INET 3101. C Programming: Language and Applications. (; 2 cr. ; A-F or Audit; Every Fall)
Syntax of C language. How other languages use C to interact with operating system. Debugging. Assignments build upon real-world programming examples to demonstrate how/where to use C. Scripting using languages such as UNIX shell and Perl. prereq: Programming experience or completed coursework in [Java or C+ or similar programming language]

INET 3102. Web Infrastructure. (; 2 cr. ; A-F or Audit; Every Fall)
Infrastructure of the web, from its fundamental protocol (HTTP) to the organization and use of large-scale components and services. Cloud offerings (compute, storage, queuing) and platforms (AWS, Google Apps, Heroku). prereq: [3101, CSCI 2021] or equiv IT experience

INET 4001. Foundations of Operating Systems. (4 cr. ; A-F or Audit; Every Fall)
Although the concept of an operating system has some core components, such as I/O, storage, CPU scheduling, process, and synchronization, the ways we use computing devices are radically changing. With the advent of concepts like IoT (internet of things), we need to not just simply take a single concept of a computer (PC or server) as de facto standard, we must adapt and understand how the core components that make up an operating system change how we need to use these components. We also have the ability to consume OS resources via networking like never before. What is commonly called "cloud computing" has now stretched what we think of a compute device across the globe as a connected system of services/processes. This course will start from the beginning of computing (briefly) to ground what we are actually trying to do with compute devices. From here, we'll understand the foundation of operating system components, but not just from a single platform. An introduction to cloud computing is essential as well, as there are many components we consume via compute devices that are across a WAN circuit as a "service." Prerequisites: CSci 2021 or EE 2361

INET 4002. Foundations of Networking. (3 cr. ; A-F or Audit; Every Fall & Spring)
Basics of data communications and computer networks. Foundations of network protocols, data communications models, networking devices, and network types. Local area, wide area, and wireless networks and their uses in business applications. Network monitoring, troubleshooting, security, and management fundamentals, including their application in enterprise networking. 3 credits. No prerequisites, but basic knowledge of computer architecture and operating systems is recommended. Note that credit will be granted for either INet 4002 or CSci 4211, but not both.

INET 4007. Security II: Cyber Security. (4 cr. ; A-F only; Every Fall)
An exploration of information security, how it applies to current networking technologies, and ways these technologies are used and consumed. New authentication methods for securing user data, such as telemetry, biometrics, and N factor authentication, will be surveyed. The course will also look at recent instances of information breaches that have put a spotlight on security, especially as they relate to cloud services, virtual environments, and Internet standards. No prerequisites. Basic knowledge of security issues and processes (detection, risk assessment, technology, secure design, business continuity, forensics, and legal aspects) is recommended. If you have taken INet 4165, you will be well prepared. If you are unsure about whether your knowledge is sufficient for success in this class, contact the instructor.

INET 4011. Networking I: Network Administration. (4 cr. ; A-F or Audit; Every Fall)
A combination of networking theory (lecture and expert guest speakers) and application (lab work). Topics include network architecture, switching, routing, algorithms, protocols, infrastructure hardware, cable plant, security, and network management. prereq: CSCI 4211-Introduction to Computer Networks or equivalent networking knowledge and understanding.

INET 4021. Dev Ops I: Network Programming. (; 4 cr. ; A-F or Audit; Every Spring)
Network and distributed programming concepts. Design using C, Java, and other higher-level programming languages. Sockets, TCP/IP, RPC, streaming, CORBA, .NET, and SOAP. Labs use UNIX/Linux and MS Windows operating systems. prereq: major admission requirements completed.

INET 4031. Introduction to Systems. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Overview of systems administration. Integration of hardware, software, and operational practice. Role of a systems administrator in today's infrastructure world, the environment within which the administrator operates, and various components that influence decision-making criteria. Ways these technologies are implemented in practice are conveyed through industry speakers, tours, and demonstrations. Hands-on labs when possible. prereq: Secure knowledge of operating systems, such as provided by INet 4001 or CSci 4061.

INET 4032. Systems I: Storage. (; 4 cr. ; A-F or Audit; Every Fall)
Information is one of the most valuable commodities of the 21st century. This course deals with the proper care and handling of enterprise data, whether the ?enterprise? is a large multinational corporation, a family home, or something in between. Topics include storage network architecture and storage system design. We will examine data storage technology; local, network, and distributed storage; storage history; data protection policy and implementation (including redundancy, replication, backup, and archive storage); security; compression and encryption; and emerging technologies like Big Data, Cloud storage, AWS, Google, and vCloud Air. prereq: Fundamental understanding of an operating system such as Microsoft Windows, Linux, or Apple OSX, in the areas of file systems, I/O, computer architecture, and basic administration.

INET 4041. Networking II: Emerging Technologies. (; 4 cr. ; A-F or Audit; Every Fall)
Emerging networking concepts, technologies, and applications. Topics will evolve to reflect current trends and expertise of the faculty, such as high speed networking, ATM, network security, wireless networks, multimedia, and electronic commerce. Each technology is considered for the underlying theory; the driving technological and business needs; the applications; the competing alternative technologies; and the design, implementation, and configuration of such systems. Case studies may be used to identify and analyze strategic issues and problems. Concepts and tools from this and previous ITI courses are applied to solve these problems and design realistic programs of action. Hands-on labs are included when possible. Industry speakers, tours, and demonstrations show practical applications. prereq: CSci 4211 or equivalent, or professional experience, to comprise a basic understanding and knowledge of operating systems, computer architecture, and probability theory. Senior status preferred.

INET 4051. IT Infrastructure Operations. (; 3 cr. ; A-F or Audit; Every Spring)
Comprehensive review of major aspects of IT infrastructure and operations: networks, databases, servers, storage, project management, governance, compliance, monitoring, and more. Two research papers on current IT topics will be completed, along with weekly quizzes. prereq: senior; CSCI 42ll or instr consent

INET 4061. Data Science I: Fundamentals. (4 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to data science. Design strategies for business analytics: statistics for machine learning, core data mining models, data pipeline, visualization. Hands-on labs with data mining, statistics, and in-memory

analytics software. prereq: Basic statistics and programming skills, laptop

INET 4082W. IT Infrastructure Projects and Processes. (WI; 3 cr. ; A-F or Audit; Every Fall)
This course presents an IT management perspective on business partnerships, project management and lifecycles, methodologies, processes, and organizational structures. It covers scope definition, resource estimating of time and cost, quality considerations, and metrics and risk analysis. Project management best practices are emphasized. All the concepts will be tied together with project simulation assignments. As a writing intensive designated course, it will spend significant time focusing on the writing process. Writing is crucial to this discipline because clear, accurate, and professional communication is essential to each element in the process of project management. The inability to write well, clearly, and in terms of specified audiences can, in the professional world, lead to not only miscommunication between team members but also, and more largely, to a failure of projects and the companies and employees they represent. prereq: 45 cr recommended

INET 4083W. Systems II: Analysis and Design. (WI; 3 cr. ; A-F or Audit; Every Spring)
Requirements management, analysis, and design of computer system solutions that meet business objectives. Materials and resources are intended to prepare students to be effective business analysts and systems analysts. Topics include the systems development life cycle, analysis and design tools and techniques, and communication strategies. As a writing intensive course, INET 4083W focuses especially on writing in information technology and the writing process and uses a case study and in-class exercises to develop analytical, technical, and communication skills. Students can expect to spend significant time in and out of class developing writing skills, thinking through the writing process, and drafting and revising written work. Prereq: INet 4082W (or equivalent project management experience) is recommended.

INET 4121. DevOps II: Development Strategies. (4 cr. ; A-F or Audit; Every Fall)
DevOps (Development and Operations) is the term used to describe the collaboration of software engineers with the quality assurance and operations teams who test, deploy, and operate new systems. Its goal is to generate better and more continuous feedback regarding what is being developed, consumed, and operated, in order to increase delivery and deployment speed while maintaining system stability. Topics include configuration management, application deployment, monitoring of application and infrastructure performance, version control, and testing and building systems. Professional software engineering tools for the continuous integration tool chain are surveyed, and the Python language, combined with operating system and web functions, is used to develop tools for automating DevOps practices. (Though assignments are in Python, students with only Java or C++ should be able to learn Python quickly.) prereqs: CSCI 4061 or operating system knowledge, basic knowledge of Python

INET 4153. Introduction to Security: Policy and Regulation. (; 4 cr. ; A-F or Audit; Every Fall)
Explores the significant domestic and international regulatory demands faced by information technology management (IT) in business and industry, with attention to the effects of those regulations on IT Infrastructure policy, technology management, and decision making. Several major U.S. and international regulatory documents will be studied. IT governance, risk and compliance management frameworks, best practices, and common approaches used to meet today?s regulatory challenges and support common business functions will be examined, as well as IT policies, procedures, and processes in highly regulated business sectors. prereq: experience with Windows/Internet; 45 semester credits

INET 4165. Security I: Principles. (3 cr. ; A-F or Audit; Every Spring)
An in-depth look at the information security profession. Focuses on real-world IT security issues and processes rather than any particular technology or product solution. Topics include risk assessments/pen testing, ethics, malicious code, preservation of business continuity/ disaster recovery, security policies and procedures, security awareness, encryption, privacy and legal issues, intruder detection, forensics, secure web design, incident response, vulnerability assessment, and security audits. prereq: CSCI 4061 or equiv experience with operating systems

INET 4193. Directed Study. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent project. Topic arranged with and supervised by ITI faculty. prereq: ITI student, dept consent

INET 4596. Internship. (; 1 cr. [max 3 cr.] ; A-F only; Every Fall, Spring & Summer)
Provides students with the opportunity to gain hands-on experience working in a professional IT setting and get an insider's view of information technology applications in the workplace. In consultation with a faculty adviser, students apply classroom learning, contribute to knowledge of best practices, and prepare for the transition from school to full-time employment in the IT field. Students seeking credit for the internship are expected to find employment that primarily draws upon the intern?s academic knowledge in field-relevant level tasks and allows for new learning in these areas. prereq: [ITI major or certificate student], [jr or sr], dept consent

INET 4707. Introduction to Databases. (; 4 cr. ; A-F or Audit; Every Fall)
Concepts, data models. Case studies, data manipulation languages, logical data models, database design, facilities for database security/integrity, applications. Prereq: CSci 4061, at least 45 cr completed; CSci majors contact CSci Dept before registering.

INET 4709. Data Management I: Fundamentals. (3 cr. ; A-F or Audit; Every Spring)
This course provides insight into concepts and techniques for installing and managing highly scalable relational databases: storage, protection, structure, tuning, and access. Students will learn how to integrate business requirements into specific database policies and procedures. Topics include selection of hardware and software components, backup and disaster recovery, performance metrics, high availability, and monitoring techniques. Hands-on lab exercises will utilize core concepts covered in lecture: installation of MySQL, backup and recovery, import and export, security, transaction management, data partitioning, and database replication. prereq: INet/CSci 4707 and CSci 4061, or professional experience with SQL and basic operating systems.

INET 4710. Data Science II: Big Data Analytics. (4 cr. ; A-F or Audit; Every Spring)
Scales machine learning models and data analysis to a Big Data platform. Map Reduce and Spark frameworks are introduced as approaches to parallel algorithm development. Hands-on labs. Prerequisites: Basic programming knowledge (Java, Python, R). Linear algebra strongly recommended, especially matrix operations (e.g., MATH 2243, Linear Algebra and Differential Equations)

INET 4711. Data Management II: Distributed Systems. (4 cr. ; A-F or Audit; Every Fall)
Introduction to distributed programming and systems concepts in high-scale environments with a focus on application to commercial systems in the data center. Discussion of key protocols and algorithms as well as best-practice implementations on platforms commonly associated with big data in the enterprise. Hands-on experience in the design and engineering of distributed systems on cloud-oriented technologies. prereq: INET 4031 and 4707 or consent of instructor.

Information and Decision Sci (IDSC)

IDSC 3001. Introduction to Information Technology in Business. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Developing/using IS to support business processes, managerial decision making, and organizational strategy. Technology components of IS. Impact on organizations. Creation/change processes. Managerial issues. Techniques for designing, developing, and implementing IS. Databases and user interfaces. Computer/communications network platforms. Internet, e-business, and e-commerce applications.

IDSC 3001H. Honors: Information Systems for Business Processes and Management. (; 3 cr. ; A-F or Audit; Every Fall)
IS technology components. Creation/change processes. Managerial issues. Designing, developing, and implementing IS. Databases, user interfaces. Computer/communications network platforms. Internet, e-business, e-commerce applications.

IDSC 3101. Introduction to Programming. (; 2 cr. ; A-F or Audit; Every Fall & Spring)

Computer programmings used by companies to build sophisticated information systems. Variables, control structures. Data structures such as arrays/collections. Programming style, graphical user interfaces (GUIs).

IDSC 3102. Intermediate Programming. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Programming concepts to develop large, full-featured applications. Object-oriented programming, database applications, Web applications. Style, performance, UI design.

IDSC 3103. Data Modeling and Databases. (; 2 cr. ; A-F only; Every Fall & Spring)
Concepts for designing, using, and implementing database systems. Normalization techniques. Structured Query Language (SQL). Analyzing a business situation. Building a database application.

IDSC 3104. Enterprise Systems. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Management aspects of Enterprise Systems. Vendor/vendor management options. Technologies, organizational readiness. Hands-on access to software solutions from ERP software provider. End-to-end processes. Measurement of key performance indicators. Analytics, workflow. prereq: 3001

IDSC 3202. Analysis and Modeling of Business Systems. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Improving/automating key business processes in manufacturing and service industries. Roles of business management and MIS. Selecting business process opportunities, business process analysis, process modeling of work/ data flow, decomposition, software tools. Traditional/object analysis methods. prereq: 3001

IDSC 3511. Pitching Business Strategy. (2 cr. ; A-F only; Every Fall)
Contemporary business strategy drives growth across industries and geographies. Thus, effectively selling an approach to an ambiguous business situation is an important skill for those entering the business world - either as a consultant or a staff member wishing to sell ideas to senior management. You will learn how to approach an opportunity and how to communicate your approach and an action plan to management with appropriate emphasis and structure. The class consists of a series of hands-on workshops and real-world, global business cases (which serve as proxies for real-life consulting and staff experiences). Prereq: IDSc 3001 or I-Core (completed or concurrent), or Instructor permission.

IDSC 4110. Data Engineering for Business Analytics. (2 cr. ; A-F only; Every Fall)
Modern organizations increasingly base their decisions on data which is becoming more abundant by each day. The first step of using data for decision making is to prepare data in a suitable format for analysis, a step commonly known as data engineering. Typical data engineering tasks may include data acquisition, parsing, handling missing data, summarization, augmenting, transformation, subsetting, sampling, aggregation, and merging. Data engineers also frequently use basic data visualization tools to detect and fix data issues. Most recently, there is increasing demand for data engineers to handle big data and unstructured data. A good data engineering process ensures quality, reliability, and usability of data. In fact, data engineering is such a critical and time-consuming step of data-driven decision making that many data scientists and analysts spend more than 60% of their time doing data engineering related tasks.

IDSC 4161. Python for Business Applications. (2 cr. ; A-F only; Every Spring)
According to recent industry surveys, Python is a highly popular tool used by organizations for business tasks. This course is designed for students who already have an intermediate programming background such as IDSC 3101/3102 (or equivalent Computer Science programming courses) and would like to explore using Python for tasks such as text processing, data analysis, and website scraping. This course focuses on business-oriented applications of Python without requiring students to learn formal computing concepts. Participants will then learn how to apply functionality from powerful and popular libraries. We will spend most of our class time completing practical hands-on exercises.

IDSC 4204W. Strategic Information Technology Management. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Information services as service function. Investing resources to support strategy. Managing IS resources. Project Management, Human Capital Management, Infrastructure Management. Emphasis on cloud/big data infrastructures, outsourcing.

IDSC 4210. Interactive Data Visualization for Business Analytics. (2 cr. ; A-F only; Every Fall)
IDSC 4210 is an elective course for the undergraduate Business Analytics minor at the Carlson School of Management. It focuses on the fundamental and widely used exploratory data analysis technique of interactive visualization that is integral to modern business analytics. The key goal of this course is to prepare students for the rapidly changing digital environment faced by companies as it pertains to data-driven decisions. The students will also have hands?on experience with interactive data visualization using modern, state-of-the-art software on real-world datasets.

IDSC 4301. MIS in Action: A Capstone Course. (2 cr. ; A-F only; Every Fall & Spring)
The course is designed for students to integrate a large number of concepts they have studied in previous course work within the department and school. The class uses a live-case/project-based design that requires students to identify and develop a detailed managerial analysis of an information technology and/or management information system (IT, MIS) project for a local corporation.

IDSC 4310. Prescriptive Analytics. (2 cr. ; A-F only; Every Spring)
Prescriptive Analytics answer the question "What should I do?" This class of analytical techniques focuses on moving beyond simply analyzing the data to providing an optimal action plan. Prescriptive techniques combine learnings from the descriptive and predictive disciplines with a new layer of insight and computer algorithms that suggests an action plan rather than just describing the data or predicting what might happen. prereq: IDSc 4110 & 4210 recommended.

IDSC 4401. Information Security. (; 2 cr. ; A-F only; Every Spring)
Concepts/issues of security and data integrity threats that undermine utility, robustness, and confidence in electronic technologies in facilitating business transactions. prereq: 3001

IDSC 4411. Information Technology Governance and Assurance. (; 2 cr. ; A-F only; Every Spring)
Information technology audit function, internal control, audit process, smart operations, network security, systems development life cycle, enterprise resource planning risk, compliance issues. IT governance, business continuity, frameworks/methodologies. Lectures, case studies, real-world examples. prereq: 3001

IDSC 4431. Advanced Database Design. (; 2 cr. ; A-F only; Every Spring)
Reviews ER/relational modeling and normalization, then focuses on fact modeling (ORM) to produce advanced richer business data models. "Flipped" class, fully online, including all lectures & final exam. Weekly in-class review session is recorded and online for questions, discussion, and results of assignments & quizzes. prereq: 3103 or CSCI 4707 or CSCI 5707 or instr consent

IDSC 4441. Electronic Commerce. (; 2 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Issues/trends in applying e-commerce initiatives. Technological infrastructure, revenue models, web marketing, business-to-business strategies, online auctions, legal and ethical aspects, hardware/software, payment systems, security. Conceiving, planning, building, and managing e-commerce initiatives. prereq: 3001

IDSC 4444. Descriptive and Predictive Analytics. (; 2 cr. ; A-F only; Every Spring)
Data mining/personalization techniques. Exploratory/ predictive data mining techniques. Data preparation, data visualization, online analytical processing (OLAP), recommender systems. How business analytics techniques are applied in variety of business applications/ organizational settings. prereq: 3001

IDSC 4455. Web 2.0: The Business of Social Media. (; 2 cr. ; A-F only; Every Spring)
Business use of social media technologies. Blogs, wikis, online social networks. Readings, forum discussion, case analyses. How technologies engage consumers, market products or services, benefit from open innovation, foster collaboration among employees. prereq: 3001

IDSC 4471. Agile Methods. (2 cr. ; A-F only; Every Spring)
With the changing landscape of MIS methodologies, it is important to prepare for the future. This course will cover modern lightweight, and interactive IT development

practices. Topics will include methodologies (RUP, Scrum, Kanban, and others); requirements gathering processes (Epics, User Stories); tools (burn-down chart, Kanban visualization); and leadership concepts (Scrum master, team member, sponsor). This class is appropriate for those with project-oriented career goals, in IT organizations as well as consulting roles.

IDSC 4490. Information Systems Special Topics. (; 2 cr. [max 10 cr.] ; A-F or Audit; Every Spring)
Discussion and analysis of current topics and developments in information systems.

IDSC 4491. Independent Study in Information Systems. (; 1-4 cr. [max 8 cr.] ; A-F only; Periodic Fall, Spring & Summer)
Independent study in informations systems. prereq: instr consent

IDSC 4493. Directed Study. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Student-initiated project or directed study to be completed with a faculty member. prereq: Instrutor consent

Infrastructure Sys Mgmt Eng (ISME)

ISME 5101. Project Management. (3 cr. ; A-F or Audit; Every Fall)
Broad areas in project management/leadership. Emphasizes practical understanding of business/engineering project management. Project planning, scheduling, controlling. Budgeting, staffing, task/cost control. Communicating with, motivating, leading, managing conflict. prereq: Open to general grad students but with instr consent

ISME 5104. Construction Estimating. (; 2 cr. ; A-F or Audit; Periodic Fall)
Methods for quantity take-offs. Identification of resources for price/availability information. prereq: ISE grad student

ISME 5105. Computer Applications II. (; 1 cr. ; A-F or Audit; Periodic Fall)
Application features in Excel, Visual Basic, and Web Authoring. Data reduction, data presentation, interactive Web calculations. Student projects. prereq: ISE grad student

ISME 5112. Infrastructure Systems Engineering Management. (2 cr. ; A-F or Audit; Every Spring)
Managing public works infrastructure. Case studies of decision making in environment of conflicting interests. prereq: Open to advanced master's students

ISME 5113. Computer Applications in Infrastructure Systems Engineering. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Advanced application of computer tools/ methods in infrastructure engineering problems. Spreadsheet Visual Basic programming, HTML, JAVA script. prereq: ISE grad student

ISME 5114. Pavement Management, Maintenance, and Rehabilitation. (; 3 cr. ; A-F or Audit; Periodic Fall)
Concepts in network/project level pavement management for flexible/rigid pavements. Pavement distress identification/quantification. Functional/structural evaluation. Identification of appropriate maintenance activities. Selection/design of rehabilitation alternatives. prereq: ISE grad student

ISME 5201. Pavement Management Maintenance and Rehabilitation. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Concepts in network/project-level pavement management for flexible/rigid pavements. Pavement distress identification/quantification. Functional/structural evaluation. Identification of appropriate preventative/reactive maintenance activities. Selection/design of rehabilitation alternatives. prereq: ISE grad student

ISME 5202. Traffic Engineering Management. (; 2 cr. ; A-F or Audit; Periodic Spring)
Identification and effective use of traffic control devices. Automated method of characterizing/ assessing traffic flow. Evaluation/improvement of geometric features. prereq: ISE student

ISME 5301. Bridge Management Maintenance and Rehabilitation. (; 2 cr. ; A-F or Audit; Periodic Fall)
Structural/functional evaluation of steel, concrete, and timber bridges. Distress identification. Modes of failure, including fatigue, corrosion, and foundation erosion (scour). Preventative/reactive maintenance techniques. Rehabilitation design/construction. prereq: ISE grad student

ISME 5302. Critical Infrastructure Security and Protection. (; 2 cr. ; A-F only; Every Spring)
Security challenges of protecting critical infrastructure, facilities, and built environment. Security, agility, and robustness/survivability of large-scale critical infrastructure that face new threats and unanticipated conditions. Systems risk analysis, engineering, economics, and public policy approaches to infrastructure security. Design/management of complex civil infrastructure systems. prereq: ISE grad student or instr consent

ISME 5401. Water Distribution Systems. (; 1 cr. ; A-F or Audit; Periodic Fall)
Components/design of water distribution systems. Methods of evaluation/management. Maintenance/rehabilitation techniques. prereq: ISE grad student

ISME 5402. Storm Water Management. (; 2 cr. [max 10 cr.] ; A-F or Audit; Periodic Spring)
Components/design of storm water collection systems. Methods of evaluation/management. Maintenance/rehabilitation techniques. prereq: ISE grad student

ISME 5403. Water Treatment Systems. (; 2 cr. ; A-F or Audit; Periodic Fall)
Components/design of water treatment systems. Evaluation/management methods. Maintenance/rehabilitation techniques. prereq: ISE student

ISME 5500. Public Interactions. (; 1 cr. [max 2 cr.] ; A-F or Audit; Every Fall)
Techniques for effective public communication. How to run public hearing. Resources for publishing public notices. Sequence course in three parts. prereq: Advanced grad student or open to general grad students with instr consent

ISME 5501. Geographic Information Systems. (; 2 cr. ; A-F or Audit; Every Spring)
Introduction to geographic Information Systems (GIS) for infrastructure. GIS application domains, data models/sources, analysis methods, and output techniques. Lectures, readings, hands-on experience with GIS software. prereq: ISE student

ISME 5503. Financial Management in Public Organizations. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Design, installation, and use of accounting/ control systems in public organizations. Public accounting standards/practices, financial administration, financial reporting, debt management, budgeting, and contract/ procurement management systems. Lecture, discussion, case analysis. prereq: ISE student

ISME 5504. Construction Law and Ethics. (; 2 cr. ; A-F or Audit; Every Fall)
Ethical framework for responsible management of public works projects. Moral leadership, trust in public/private organizations, quality control. prereq: ISE student

Insurance and Risk Management (INS)

INS 4100. Corporate Risk Management. (; 2 cr. ; Student Option; Every Fall & Spring)
Theory applied to corporate risk management and insurance practices. Identification, measurement, and treatment of an organization.s financial risks integrated with its property, liability, workers compensation, and human resource risks. Selection and application of risk control and risk financing tools: risk retention, reduction and transfer, including insurance.

INS 4101. Employee Benefits. (; 2 cr. ; Student Option; Every Fall)
Design/administration of employee benefit plans/pension. Health insurance, disability plans. Salary reduction/deferred compensation programs. Multiple employer trusts. Alternative funding methods, including self-insurance. Ethical issues, legal liability, compliance.

INS 4200. Insurance Theory and Practice. (; 2 cr. ; Student Option; Every Spring)
Risk theory is applied to practices in health, liability, life, property, and workers compensation insurance. Insurance marketing, pricing, underwriting, and claims administration, with adverse selection and moral hazard effects. Policy issues of tort versus no-fault compensation systems. Self-insurance and integrated risk financing methods.

Inter-College Program (ICP)

ICP 3000. Career Skills in the Professional Environment. (; 2 cr. ; Student Option; Every Spring & Summer)

Career planning and job search processes appropriate to business/professional careers in corporate culture. prereq: 60 cr

ICP 3093. Directed Study. (1-15 cr. ; A-F only; Every Fall, Spring & Summer)
Independent, directed study. prereq: instr consent

ICP 3101W. Inter-College Program Proposal Development. (WI; 2 cr. ; A-F only; Every Fall & Spring)
Write proposal of study/formulate plan of courses through which to complete degree. prereq: ICP student or instr consent

ICP 3201. Career and Internship Preparation. (; 1 cr. ; A-F only; Every Fall & Spring)
Self exploration, networking, industry research, job/internship search, resumes, cover letters, interviewing, salary negotiation, goal setting. prereq: Soph or jr or sr or grad student

Interior Design (IDES)

IDES 1601. Interior Design Studio I. (4 cr. ; A-F or Audit; Every Fall)
Theories used to solve interior design problems related to human behavior. Design process. Communication skills that are required for interior design profession. prereq: Interior design pre-major or interior environments minor

IDES 1602. Interior Design Studio II. (4 cr. ; A-F only; Every Spring)
Introduction to interior design programming as method for understanding behaviors/ requirements of humans in spaces. Use of color in three-dimensional environments. Developing communication skills. Problem-solving. prereq: [1601 or DHA 1601] with grade of at least C-, interior design pre-major

IDES 2196. Work Experience in Interior Design. (; 1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Supervised work experience in business, industry, or government, related to student's area of study. prereq: Plan submitted/approved by [adviser, internship supervisor], written approval of supervisor, instr consent

IDES 2603. Interior Design Studio III. (; 4 cr. ; A-F only; Every Fall)
Expanding presentation skills, visual communication of design process. Design of interior environment as influenced by neighborhood, adjacent structures, regional context, diverse cultures. prereq: [1602 or DHA 1602] with grade of at least C-, pass portfolio review, interior design major

IDES 2604. Interior Design Studio IV. (4 cr. ; A-F or Audit; Every Spring)
Relationship between exterior/interior design as it pertains to building construction. Methods/ materials, principles of structure, building systems, construction details. Interface of electrical, HVAC, plumbing systems in buildings. prereq: [2603 or DHA 2603], 2613

IDES 2612. Interior Materials and Specifications. (ENV; 4 cr. ; A-F or Audit; Every Spring)
Environmental issues, from global to interior spaces. Effect of building codes/legislation, social awareness. Functional/aesthetic relation of materials/resources to interior design. prereq: [Pass portfolio review, interior design major] or interior environments minor or design minor or instr consent

IDES 2613. Interior Structures, Systems, and Life Safety. (4 cr. ; A-F only; Every Fall & Spring)
Codes, standards, regulations, and guidelines that govern design of interior space and support life safety. Integration of building systems. Structures for non-residential/ residential occupancy. Building/energy codes. Lectures, guest speakers, field trips.

IDES 2622. Computer Applications I. (; 2 cr. ; A-F only; Every Spring)
Computer-aided design, its role in interior design. Use of software applications for construction drawings, two-/three-dimensional representation. Modeling for interior design problem-solving/presentation. prereq: Interior design major

IDES 3161. History of Interiors and Furnishings: Ancient to 1750. (GP; 4 cr. ; A-F or Audit; Every Fall)
Study of European and American interiors and furnishings, including furniture, textiles, and decorative objects.

IDES 3162. History of Interiors and Furnishings: 1750 to Present. (HIS; 4 cr. ; A-F or Audit; Every Spring)
European/American interiors/furnishings, including furniture, textiles, and decorative objects.

IDES 3196. Field Study: National or International. (; 1-4 cr. [max 10 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Faculty-directed field study in national or international setting. prereq: instr consent

IDES 3605. Interior Design Studio V. (; 4 cr. ; A-F only; Every Spring)
Advanced interior design problems dealing with small to medium scale spaces. Emphasizes special-needs populations.

IDES 3606. Interior Design Studio VI. (; 4 cr. ; A-F only; Every Fall)
Interior design problems dealing with medium-scale spaces. Focuses on medium office design. prereq: [2604 or DHA 2604], 2612

IDES 3612. Lighting Design. (3 cr. ; A-F only; Every Fall)
Lighting as dynamic design element. Psychological aspects of light color/quality/ sources. Photometrics, codes, daylighting, energy conservation. How lighting impacts health/well-being. Integrating lighting with interior/architectural elements. Lighting/fixture design. Computer visualization. Lecture, assignments, projects.

IDES 3614. Interior Design Ethics and Professional Practice. (CIV; 4 cr. ; A-F only; Every Fall)
Business of interior design, professional ethics, and responsible design. Ethical theory/conduct. Responsibility to business, clients, colleagues, and community at large and globally. prereq: 2604 or DHA 2604; or Interior Environments Minor

IDES 3622. Computer Applications II. (2 cr. ; A-F only; Every Fall)
Advanced concepts/terms in computer modeling. Computer graphics, three-dimensional modeling, rendering, animation to provide representation strategies for interior design problem-solving/presentation. Applications such as Autodesk Revit, AutoCAD, Autodesk 3ds Max Design. prereq: 2622

IDES 4160H. Honors Capstone Project. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Indivdualizes honors experience by connecting aspects of major program with special academic interests. prereq: Interior design honors

IDES 4193. Directed Study in Interior Design. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in interior design under tutorial guidance. prereq: Undergrad, instr consent

IDES 4196. Internship in Interior Design. (; 1 cr. ; S-N only; Every Fall, Spring & Summer)
Supervised work experience relating activity in business, industry, or government to student's area of study. Integrative paper or project may be required. prereq: 3606, instr consent

IDES 4607. Interior Design Studio VII. (4 cr. ; A-F only; Every Fall)
Advanced interior design problems dealing with large scale spaces. Historic precedent, adaptive use, renovation. prereq: [IDes 2604] or [DHA 2604]] with grade of at least C-

IDES 4608. Interior Design Thesis. (; 4 cr. ; A-F only; Every Spring)
Comprehensive independent interior design project developed from student-conducted research/program developed in 4615W. prereq: [4615W or DHA 4615W], [4607 or DHA 4607] with grade of at least C-

IDES 4615W. Interior Design Research. (WI; 3 cr. ; A-F only; Every Fall)
Research methods for programming interior design solutions. Developing comprehensive program. Issues that affect interior design research/practices. prereq: 3605 or DHA 3605

IDES 4616. Sustainable Commercial Interior Design. (; 3 cr. ; A-F or Audit; Every Spring)
Intent, requirements, submittals, technologies/ strategies to achieve LEED CI standards in existing, new construction, or tenant improvement projects.

IDES 4617. Lighting Design Innovations and Technological Advances. (3 cr. ; A-F only; Every Fall)
This course deepens students' understanding of the relationship between interior and architectural lighting design issues, strategies, and methods in contemporary practice. It investigates an integrated approach to lighting design to consider lighting innovations and emerging trends in health and comfort, smart technologies, energy and performance, metrics and standards, and assessment processes and tools. Assignments incrementally introduce students to related lighting issues to enable students to gain hands-on knowledge and application of related design issues through a

small design project. Field studies and guest lectures provide insights into innovations in industry and professional perspectives on emerging technologies and systems integration.

IDES 5193. Directed Study in Interior Design. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in interior design under tutorial guidance. prereq: Jr or sr or grad student

IDES 5196. Work experience (lighting internship). (3 cr. [max 10 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Faculty-directed internship

IDES 5612. Lighting Design. (3 cr. ; A-F only; Every Fall)
Lighting as dynamic design element. Psychological aspects of light color/quality/ sources. Photometrics, codes, daylighting, energy conservation. How lighting impacts health/well-being. Integrating lighting with interior/architectural elements. Lighting/fixture design. Computer visualization. Lecture, assignments, projects.

IDES 5616. Sustainable Commercial Interior Design. (3 cr. ; A-F or Audit; Every Spring)
Intent, requirements, submittals, technologies/ strategies to achieve LEED CI standards in existing, new construction, or tenant improvement projects.

IDES 5617. Lighting Design Innovations and Technological Advances. (3 cr. ; A-F only; Every Fall)
This course deepens students' understanding of the relationship between interior and architectural lighting design issues, strategies, and methods in contemporary practice. It investigates an integrated approach to lighting design to consider lighting innovations and emerging trends in health and comfort, smart technologies, energy and performance, metrics and standards, and assessment processes and tools. Assignments incrementally introduce students to related lighting issues to enable students to gain hands-on knowledge and application of related design issues through a small design project. Field studies and guest lectures provide insights into innovations in industry and professional perspectives on emerging technologies and systems integration.

International Business (IBUS)

IBUS 1400. International Programs Elective. (1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Education abroad program elective.

IBUS 3002. Managerial Accounting in Argentina and Chile. (4 cr. ; A-F only; Every Fall)
Study abroad course provides an overview of managerial accounting concepts with a lens towards how different cultural contexts might influence the decisions that managers make around the world or in within different organizational cultures. Businesses often operate across international borders and this impacts all aspects of their business including job costing, process costing, activity-based costing, cost volume profit analysis, variable costing, profit planning, flexible budgets, budgetary controls, and variance framework. The course will include two weeks studying abroad in South America. prereqs: approved education abroad application

IBUS 3004. International Internship: Personal and Professional Development in the Global Workplace. (; 1 cr. ; S-N only; Every Summer)
This course offers the opportunity for students to observe and explore the business culture of your host country through their full-time internship placement. Students will develop intercultural communication and leadership skills through observation and structured reflection. Students in this course are participating on a Carlson education abroad program where they intern with a company, organization, or government agency related to their academic discipline of interest (e.g. marketing, finance, human resources, supply chain, MIS, etc.). Students intern at their placement about 40 hours per week for 8 weeks. prereq: Acceptance in Business Internship Program through the Carlson Global Institute

IBUS 3006. Global Career Skills. (2 cr. ; A-F only; Every Spring)
The focus of this education abroad course is to increase your awareness, knowledge and skills associated with the career and job search process both domestically and globally. The course includes career exploration and discovery, as well as the tactical pieces of a job search. You will be exposed to a variety of individuals, organizations, and cultures in Minnesota and internationally who will give you different perspectives on the process such as recruiters from multi-national organizations, students who have completed an internship, and presenters abroad. You will also learn to use the Carlson School of Management Undergraduate Business Career Center (UBCC), On Campus Recruiting, and GoldPASS Powered by Handshake. This development will increase your ability to undertake a successful career and job search during college and beyond. This course is designed to be taken prior to or concurrent with enrollment in I-CORE. Prereq: an approved education abroad application and CSOM BSB students only.

IBUS 3010. Introduction to Global Entrepreneurship. (4 cr. [max 12 cr.] ; A-F only; Every Spring)
Terms, concepts, skills for analyzing fundamental business practices in global economy.

IBUS 3021. Human Resource Management and Strategy in Australia. (4 cr. ; A-F only; Every Spring)
This course will look at how, through managing and leading people, we can achieve organizational strategic objectives. The class will learn about managing people in an ethical, legal way that is aligned with organizational strategy and helps organizations reach their goals through recruiting, selecting, training, rewarding, coaching, motivating and developing the people within the organization. The course will also partner with a class in Australia to work through a live case study in cross-cultural, virtual teams. Overall the course will prepare the students to be managers and leaders in an increasingly complex, global business environment. prereq: ECON 1101, ECON 1102, PSY 1001

IBUS 3033W. Business Communication in Spain. (WI; 4 cr. ; A-F only; Every Spring)
Education abroad course. Similar to MGMT 3033W with additional international experience end of semester.

IBUS 3055. Innovating with Technology: Global IT Entrepreneurship in Action. (4 cr. ; A-F only; Every Spring)
This course provides state-of-the-art knowledge about information technologies and fundamentals of entrepreneurship with an international learning experience in some of China's leading IT innovation hubs. It also provides a comprehensive overview of current and emerging technologies in several different areas of IT, focusing on the needs of the modern net-enhanced organizations and IT adaptation to local markets. In particular, the course covers basics of consumer electronics, Internet and mobile communications, web technologies, cloud computing, cyber-security, social network, etc. Students will be trained to use sprints to evaluate ideas, risk, costs and culturalization needs of IT solution for local markets. We will look at how technology leaders/entrepreneurs in China and the rest of the world are addressing with the opportunities related to China. This class will teach students to use sprints to answer pressing business questions. First, students will map out the problem and pick an important place to focus. Second, they will sketch competing IT solutions on paper. Third, they will need to make decisions and turn their ideas into testable hypothesis. Fourth, they will develop a real or conceptual model for a prototype. Lastly, they will prepare to test out the ideas or pitch them to the partner companies in China.

IBUS 3080. Sustainability and Corporate Social Responsibility in Costa Rica. (4 cr. ; A-F only; Every Fall)
Study abroad course focused on sustainability and corporate social responsibility. This course will utilize these constructs to introduce students to an overview of emerging approaches to business and its relationship with the environment. CSR and corporate approaches to sustainability will be explored from a global perspective.

IBUS 3090. International Business Special Topics. (; 2-4 cr. [max 12 cr.] ; A-F only; Periodic Fall, Spring & Summer)
An education abroad program with discussion, analysis, site visits, and experiential learning of current topics and developments in international business. Topics will vary.

IBUS 3101. Undergraduate Semester: CIMBA (Consortium of Universities for International Studies). (0-18 cr. [max 54 cr.] ; Student Option; Every Fall & Spring)

Semester of study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. For current offerings, contact Carlson Global Institute. prereq: 60 cr

IBUS 3400. International Programs Elective. (1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Elective course for education abroad.

IBUS 3401. International Programs Elective. (1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Elective course for education abroad.

IBUS 3402. International Programs Elective. (1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Elective course for education abroad.

IBUS 3500. International Business: Undergraduate Exchange - BLOCK. (0-18 cr. [max 90 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3501. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3502. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3503. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3504. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3505. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3506. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3507. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3508. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3509. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3510. International Business: Undergraduate Exchange. (0-18 cr. [max 90 cr.] ; Student Option; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 3600. Undergraduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 3601. Undergraduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 3602. Undergraduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 3603. Undergraduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 3700. London School of Economics Summer Program. (0-18 cr. ; S-N only; Every Summer)
Summer study abroad at London School of Economics. Students select one or two sessions based on their academic needs/interests.

IBUS 3701. Vienna Summer Program in International Business (Undergraduate). (0-18 cr. ; S-N only; Every Summer)
Summer study abroad at one of Carlson's School's international exchange partner universities, Vienna University of Economics/Business Administration. Students select intensive/enrichment courses based on academic needs/interests.

IBUS 3702. Copenhagen Summer Program in International Business (Undergraduate). (0-18 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Summer study abroad at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. For current offerings, contact Carlson International Programs. prereq: 60 cr

IBUS 3703. Norway Summer Program in International Business (Undergraduate). (0-18 cr. ; S-N only; Every Summer)
Summer study abroad at one of Carlson School's international exchange partner universities, BI Norwegian School of Management. Three-week program. Focuses on Scandinavian management/Norwegian life/society.

IBUS 3704. Shanghai Summer Program in International Business (Undergrad). (0-18 cr. ; S-N only; Every Summer)
Summer study abroad at one of Carlson School's international exchange partner universities, Antai College of Economics and Management. This is a three week summer program integrating intense business education in China context with corporate experience.

IBUS 3800. CIMBA Summer Program. (0-18 cr. ; Student Option; Every Summer)
Consortium Institute of Management/Business Analysis (CIMBA) Summer Program in Italy. Four-week program.

IBUS 3999. Self-Designed International Research Experience. (1 cr. ; S-N only; Every Fall, Spring & Summer)
In meeting the international experience requirement through a self-design students will develop reflective research component. Through this course, students are expected to gain meaningful exposure to an international setting that allows for cultural interaction, in-depth study, research, and reflection. This experience would serve as a catalyst for students to attain a broader mindset and to gain deeper understanding of cultural norms and expectations of others. Contact the Carlson Global Institute (cgi@umn.edu) to discuss the application process. prereq: approved proposal and dept consent.

IBUS 4050. Management of Innovation and Change. (4 cr. ; A-F only; Every Fall)
Applying theories/research on how new organizational programs, products, technologies are developed/implemented. Diagnostic skills. How innovation unfolds. prereq: [Mgmt 1001 or 3001 or 3010], approved application

IBUS 4082W. Brand Management. (WI; 4 cr. ; A-F only; Every Spring)
Brand asset management. Measuring brand knowledge. Building and leveraging brands. Managing brands globally. prereq: MKTG 3010, MKTG 3040

IBUS 4125. Global Banking: A Survey of Regulatory and Competitive Developments Post Financial Crisis. (2 cr. ; A-F only; Every Fall)
This course provides students with an understanding of the functions of large, global banking organizations. We will start with a review of the impact of the financial crisis on the regulatory landscape, and identify some of the key differences between US, European, and global regulatory frameworks; discuss the different business models adopted by banks

in Europe compared to the United States. We will look at how those different business models are reflected in financial statements, and learn how to interpret bank financial statements through ratio analysis. Finally, we will discuss the impact of digital disruption, and how it is forcing banks to consider new strategic directions. Course will include two weeks studying abroad in various European countries. prereq: FINA 4121 and approved education abroad application

IBUS 5090. Study Abroad Independent Study. (1-4 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Independent study coordinated by faculty member.

IBUS 5091. Shanghai Summer Program in International Business (Graduate). (0-18 cr. ; S-N only; Every Summer)
Summer study abroad at one of Carlson School's international exchange partner universities, Antai College of Economics and Management. This is a three week summer program integrating intense business education in China context with corporate experience.

IBUS 5110. Business and the Environment in Costa Rica. (4 cr. ; A-F only; Every Fall & Spring)
How businesses maintain/increase profits by taking care of environment. Sustainable development, environmental strategy. Travel to Costa Rica to join students from INCAE (partner school) for series of courses. Case studies, site visits, field trips. Taught in English. prereq: Sr or grad student

IBUS 5120. Global Business Practicum in Central and Eastern Europe. (4 cr. ; A-F only; Every Spring & Summer)
Rapidly changing business environment of Central/Eastern Europe. Students work in teams with students from WU-Vienna University of Economics/Business for two weeks in May/June in Central/Eastern Europe. prereq: Carlson grad student

IBUS 5130. France Seminar: Doing Business in the European Union (Graduate). (4 cr. ; S-N only; Every Fall, Spring & Summer)
Two-week study abroad program at Universite Jean-Moulin Lyon 3 in Lyon, France. Includes courses taught by international faculty, site visits, cultural excursions. prereq: Carlson grad student

IBUS 5140. Vienna Summer Program in International Business (Graduate). (0-18 cr. ; S-N only; Every Summer)
Summer study abroad program at Europe's largest business school (WU-Vienna). Students take three business classes, plus German language. Program participants from Europe, Asia, Latin America, United States. prereq: Carlson grad student

IBUS 5150. IBUS 5150: Building on Frugal Innovations to Complete in a Global Environment. (4 cr. [max 8 cr.] ; A-F only; Every Fall)
On this program, students will be exposed to concepts related to developing a global managerial mindset, with a particular focus on understanding global product/market innovation. A variety of successful examples highlights the potential of frugal innovation - the term used to describe of cost-effective innovations devised to solve local problems in resource constrained markets - as being a very powerful source of ideas for new products and services. Products of frugal innovation, once proven locally, can be subsequently integrated into the broader R&D and product innovation processes within firms and become the base platforms for global products targeted at markets across the world. Students will choose an industry or domain of focus in class sessions and be exposed to global R&D practices in large local firms and then interact with startups and innovators working on frugal innovation projects on the ground in India. This is an education abroad program. Contact the Carlson Global Institute at cgi@umn.edu with questions. Prereq: approved application

IBUS 5160. Cologne Summer Program: European Management (Grad). (8 cr. [max 24 cr.] ; S-N only; Every Summer)
Summer study abroad at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interest. prereq: Carlson grad student

IBUS 5200. International Business: Undergraduate Exchange. (0-16 cr. [max 160 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 5201. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 5202. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests.

IBUS 5203. International Business: Undergraduate Exchange. (0.5-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 5204. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 5205. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 5206. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr, Carlson School International Programs consent

IBUS 5207. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Student's select courses based on academic needs/interests. prereq: 60 cr

IBUS 5208. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Student's select courses based on academic needs/interests. prereq: 60 cr

IBUS 5209. International Business: Undergraduate Exchange. (1-6 cr. [max 60 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: 60 cr

IBUS 5260. Sustainability: The New Management Paradigm. (4 cr. ; A-F only; Every Spring)
View of integrated reporting (sustainability reporting) as it relates to various fields of business. Site visits, meetings with business executives/governmental agencies. Two weeks in the United Kingdom following commencement week, preceded by Spring B Term classes.

IBUS 5300. International Business: Graduate Exchange BLOCK. (0-18 cr. [max 54 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. For current offerings, contact Carlson International Programs. prereq: Carlson grad student

IBUS 5301. Graduate Exchange in International Business - BLOCK. (0-18 cr. [max 54 cr.] ; S-N only; Every Summer)
Summer study abroad at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5302. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5303. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select

courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5304. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5305. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5306. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5307. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5308. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5309. International Business: Graduate Exchange. (0-18 cr. [max 180 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5310. International Business: Graduate Exchange. (0-18 cr. [max 72 cr.] ; S-N or Audit; Every Fall & Spring)
Study at one of Carlson School's international exchange partner universities. Students select courses based on academic needs/interests. prereq: Carlson grad student

IBUS 5400. Global Business Practicum. (4 cr. [max 12 cr.] ; A-F only; Every Spring)
This course is an experiential learning model designed to provide student with an opportunity to apply global business knowledge and hone cross-cultural skills through a live international business project. This is an education abroad program. Contact the Carlson Global Institute with questions. Prereq: approved application

IBUS 5600. Graduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 5601. Graduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 5602. Graduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 5603. Graduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 5604. Graduate Summer Exchange. (0-4 cr. ; S-N only; Every Summer)
Summer study abroad exchange to one of Carlson Global Institute's partner universities.

IBUS 5605. Shanghai Summer Program in International Business (Graduate). (0-18 cr. ; S-N only; Every Summer)
Summer study abroad at one of Carlson School's international exchange partner universities, Antai College of Economics and Management. This is a three week summer program integrating intense business education in China context with corporate experience.

Introduced Species, Genotypes (ISG)

ISG 5010. Risk Analysis for Introduced Species and Genotypes. (; 3 cr. ; A-F only; Every Fall)
Analytic-deliberative model of Ecological Risk Assessment (ERA). Components of ERA. Risk characterization. Evaluation of risk management decision processes. Use-risk communication, multi-stakeholder deliberation techniques. Cases. prereq: Grad student or [sr, instr consent]

ISG 5020. Risk Analysis Modeling for Introduced Species and Genotypes. (; 1 cr. ; S-N only; Every Spring)
Four-day workshop. Role/mechanics of mathematical modeling within ecological risk assessment. Integrated exercises, cases. prereq: [5010 or equiv], instr consent

Italian (ITAL)

ITAL 1001. Beginning Italian I. (; 5 cr. ; Student Option; Every Fall & Spring)
Ciao! Join us in learning Italian, the language of Dante, DaVinci, and la dolce vita! This melodic language spoken throughout the world in fields including music, fashion, cuisine, and fast automobiles will enrich you as a citizen of the world and allow you access to some of the most amazing art and culture on the planet! Beginning Italian, Italian 1001, is a proficiency-based course designed for students with little or no knowledge of the Italian language focusing on developing your intercultural, reading, listening, speaking, and writing skills. Preparatory activities designed to encourage students to analyze grammatical points in question need to be completed before class so class time can be primarily devoted to meaningful interactions in Italian. To further increase your confidence in communicating in Italian, you will also participate in several one-to-one online exchange with native speakers of Italian throughout the semester. Upon successful completion of this course, you will be able to enroll in Italian 1002. Expect an average of 1.5 hours of outside preparation for each class session hour.

ITAL 1002. Beginning Italian II. (; 5 cr. ; Student Option; Every Fall & Spring)
Bentornati! Ready to embark on a new journey to further develop your knowledge of our beautiful romance language, Italian? If you passed Italian 1001 or you have obtained DLI?s consent, this course is for you! You will further develop your skills in Italian as you examine topics such as haute couture or alta moda and the phenomenon of Made in Italy, as well as music, from opera to hip hop. You will also learn about holidays, cultural celebration, and differences and similarities between the scholastic and healthcare systems in Italy and the US. Throughout the semester your learning will be continually enhanced by regular conversations with your Tandem partner in Italy. Preparatory activities designed to encourage students to analyze grammatical points in question need to be completed before class so class time can be primarily devoted to meaningful interactions in Italian. Italian 1002 is a five-credit course, so you should plan to spend an additional 10-15 hours a week on coursework outside the classroom. Upon successful completion of this course you will be able to enroll in Italian 1003. prereq: 1001 or instr consent

ITAL 1003. Intermediate Italian I. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
BENVENUTI AL 3? SEMESTRE D'ITALIANO! Throughout the semester in Italian 1003, you will be able to consider your own point of view while learning about various Italian perspectives as we examine topics ranging from housing and historical and contemporary urban design to responsible tourism, linguistic variety, and social problems. Upon completion of this course, you will be able to use Italian to communicate in everyday situations to share personal information about yourself, express your opinions, wishes and desires, make suggestions and give advice, as well as appropriately use active vocabulary. You will continue to acquire basic cross-cultural pragmatic information to help you manage conversations in a culturally appropriate manner, and once again, you will expand your cultural knowledge by talking face to face with your Italian Tandem partner several times over the semester. As with other Italian language course, preparatory activities designed to encourage you to analyze grammatical points in question need to be completed before class so class time can be primarily devoted to meaningful interactions in Italian. Upon successful completion of this course you will be able to enroll in Italian 1004.

ITAL 1004. Intermediate Italian II. (; 5 cr. ; Student Option; Every Fall & Spring)
Benvenuti! We invite you to join us in learning the language spoken by one of the most beloved countries and leading destinations for learning abroad in the world! Italy, the cradle of the Renaissance and home to some of the most beautiful art and architecture on earth, boasts the world's seventh largest economy,

a renowned creative design and fashion industry, as well as a rich and diverse history and heritage. In this course, you will engage directly with Italian culture and society through a variety of learning portals, including authentic short films and literature, in-class debates and presentations, and an array of assessment methods. Throughout the semester, vital current issues such the impact of technology, justice and politics, and changing inter-generational and interpersonal dynamics will be discussed within a comparative lens, inviting you to reflect on how your own experiences contrast with a sample of those within the Italian culture (Italy). The fourth semester of Italian is designed using a proficiency-based approach to help you develop the ability to communicate effectively in Italian in everyday situations that have real world relevance. Listening, reading, speaking, and writing are integrated into all activities and assessments. By means of self-study preparatory activities designed to encourage students to analyze grammatical points in question before class, so class time can be devoted to meaningful, dynamic interactions with classmates and your teacher in Italian. To further increase your confidence in communicating in Italian, you will also be able to participate in several one-to-one online exchanges with native speakers of Italian throughout the semester. You may end up with a lifelong friend in Italy! Upon successful completion of this course students will be able to demonstrate proficiency by successful completion of the Italian Language Proficiency Exam (LPE) and/or enroll in Italian 3015. prereq: ITAL 1003

ITAL 1022. Accelerated Beginning Italian. (; 5 cr. ; Student Option; Periodic Fall & Spring)
This is a fast-paced course that covers the first two semesters of Italian in one semester. Students will be able to move more quickly toward proficiency in Italian to fulfill requirements and/or enroll in advanced Italian courses or expand research options. At the end of this course, you will be able to communicate about topics such as past times, food, family, school, health, sports and much more.

ITAL 1837. Imagining Italy: Italian and Italian-American Culture, History, and Society through Film. (AH,GP; 4 cr. ; Student Option; Every Fall)
Weekly guest lectures and critical readings expand from different disciplinary perspectives upon issues raised by films. Urban life, religion, nationalism, opera, violence, leisure, food, fascism, terrorism, family, emigration/ immigration, ethnicity, Mediterranean culture.

ITAL 3015. Reading, Conversation, and Composition. (; 4 cr. ; Student Option; Every Fall & Spring)
How can a society manage an aging population? What steps can be taken to promote integration and overcome differences? Is technology helping or hindering our interpersonal relationship? Is history doomed to repeat itself? CONGRATULATIONI! You are about to embark into a rewarding journey to further deepen your Italian experience while developing your critical thinking skills. This class will increase your appreciation of Italian culture through engagement with articles, short films and literary extracts (of authors such as Nobel's prize Dario Fo, Salgari, Buzzati and Ginzburg) on contemporary cultural topics ranging from social problems to the use and misuse of technology to the impact of historical events on people?s everyday lives. You will also have the opportunity to interact face to face online with Italian students to improve your language skills as well as expand your cultural knowledge while drawing comparisons and reflecting on the U.S. societal views of those topics. This intensive, intermediate course is designed for students who have passed Italian 1004 and have mastered basic Italian grammar. The course will include preparatory activities that are designed to encourage students to analyze grammatical points in question. prereq: 1004

ITAL 3201. Reading Italian Texts: Poetics, Rhetoric, Theory. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
A basic course in understanding the rhetorical and poetic aspects of language and literature; interpretive methods and theoretical concepts. prereq: 3015

ITAL 3203. Italian Travelers: Borders and Travelers. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall)
Examines literary representations of travel, migration, immigration, exile, and tourism in Italy from the Enlightenment to the present. Taught in English

ITAL 3305. Staging the Self: Theater and Drama in Modern Italy. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall)
Theatrical representations of the self in modern Italy. Particular attention given to issues of identity, gender, and class in theatrical works ranging from Alfieri's Mirra, Pirandello's Enrico IV to Dacia Maraini's Clyteminestra. prereq: 3015

ITAL 3459W. Senior Project. (WI; 2 cr. ; Student Option; Every Fall & Spring)
Research/writing on issue/theme in Italian studies. Projects range from scholarly paper to artistic/creative writing or musical composition, photography, poetry, or fiction. Research/ analytical component. prereq: completion of pre-requisite for major (3015) and eight electives for the sum of 30 credits

ITAL 3502. Making of Modern Italy: From the Enlightenment to the Present.. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Spring)
Italian literary, cultural, and symbolic practices from the Enlightenment to the present. prereq: 3015

ITAL 3640. Topics in Italian Studies. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Spring)
Topics of interest in studies of Italian or Italian American culture of 20th century. Literary, critical, cultural, historical, or social issues, a specific author, a genre, or other topic. Content varies by instructor, see Course Guide. prereq: 3015 or instr consent

ITAL 3647. Urban Transformation in Italy. (GP; 3 cr. ; A-F only; Every Summer)
Building on our study of urban living, neighborhood cultures and traditions, and the decentralized nature of Italian geopolitics in ITAL 1003 and 1004, this global seminar will further explore the history, politics, aesthetics, and current status of urban revitalization, Italian-style, providing a lens through which we can understand the diversity of Italian culture today. While concentrated largely on residential neighborhoods within the Capital, Rome, the seminar includes a three-day excursion to Matera and Alberobello, the former in the central-southern region of Basilicata and the latter in southeastern Puglia, enabling students to consider the implications of two Southern Italian local economies largely dependent on tourism for survival and ponder the sustainability of each area. The seminar culminates in an extended day-long excursions to Naples, which contains the only continually inhabited city center in Italy, and will present a counter-example to the processes of revitalization and neighborhood transition witnessed in Rome and elsewhere, as well as provide an opportunity to synthesize information gathered thus far and apply it in a different context.

ITAL 3837. Imagining Italy: Italian and Italian-American Culture, History, and Society through Film. (AH,GP; 4 cr. ; Student Option; Every Fall)
Weekly guest lectures and critical readings expand from different disciplinary perspectives upon issues raised by films. Urban life, religion, nationalism, opera, violence, leisure, food, fascism, terrorism, family, emigration/ immigration, ethnicity, Mediterranean culture.

ITAL 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

ITAL 4001. Beginning Italian for Graduate Research I. (; 5 cr. ; Student Option; Every Fall & Spring)
Ciao! Join us in learning Italian, the language of Dante, DaVinci, and la dolce vita! This melodic language spoken throughout the world in fields including music, fashion, cuisine, and fast automobiles will enrich you as a citizen of the world and allow you access to some of the most amazing art and culture on the planet! Beginning Italian, Italian 4001, is a proficiency-based course designed for students with little or no knowledge of the Italian language focusing on developing your intercultural, reading, listening, speaking, and

writing skills. Preparatory activities designed to encourage students to analyze grammatical points in question need to be completed before class so class time can be primarily devoted to meaningful interactions in Italian. To further increase your confidence in communicating in Italian, you will also participate in several one-to-one online exchange with native speakers of Italian throughout the semester. Upon successful completion of this course, you will be able to enroll in Italian 4002. Expect an average of 1.5 hours of outside preparation for each class session hour. prereq: instr consent

ITAL 4002. Beginning Italian for Graduate Research II. (; 5 cr. ; Student Option; Every Fall & Spring)
Bentornati! Ready to embark on a new journey to further develop your knowledge of our beautiful romance language, Italian? If you passed Italian 1001 or you have obtained DLI's consent, this course is for you! You will further develop your skills in Italian as you examine topics such as haute couture or alta moda and the phenomenon of Made in Italy, as well as music, from opera to hip hop. You will also learn about holidays, cultural celebration, and differences and similarities between the scholastic and healthcare systems in Italy and the US. Throughout the semester your learning will be continually enhanced by regular conversations with your Tandem partner in Italy. Preparatory activities designed to encourage students to analyze grammatical points in question need to be completed before class so class time can be primarily devoted to meaningful interactions in Italian. Italian 4002 is a five-credit course, so you should plan to spend an additional 10-15 hours a week on coursework outside the classroom. Upon successful completion of this course you will be able to enroll in Italian 4003. prereq: instr consent

ITAL 4003. Intermediate Italian for Graduate Research I. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
BENVENUTI AL 3? SEMESTRE D'ITALIANO! Throughout the semester in Italian 1003, you will be able to consider your own point of view while learning about various Italian perspectives as we examine topics ranging from housing and historical and contemporary urban design to responsible tourism, linguistic variety, and social problems. Upon completion of this course, you will be able to use Italian to communicate in everyday situations to share personal information about yourself, express your opinions, wishes and desires, make suggestions and give advice, as well as appropriately use active vocabulary. You will continue to acquire basic cross-cultural pragmatic information to help you manage conversations in a culturally appropriate manner, and once again, you will expand your cultural knowledge by talking face to face with your Italian Tandem partner several times over the semester. As with other Italian language course, preparatory activities designed to encourage you to analyze grammatical points in question need to be completed before class so class time can be primarily devoted to meaningful interactions in Italian. Upon successful completion of this course you will be able to enroll in Italian 4004. prereq: instr consent

ITAL 4004. Intermediate Italian for Graduate Research II. (; 5 cr. ; Student Option; Every Fall & Spring)
Benvenuti! We invite you to join us in learning the language spoken by one of the most beloved countries and leading destinations for learning abroad in the world! Italy, the cradle of the Renaissance and home to some of the most beautiful art and architecture on earth, boasts the world's seventh largest economy, a renowned creative design and fashion industry, as well as a rich and diverse history and heritage. In this course, you will engage directly with Italian culture and society through a variety of learning portals, including authentic short films and literature, in-class debates and presentations, and an array of assessment methods. Throughout the semester, vital current issues such the impact of technology, justice and politics, and changing inter-generational and interpersonal dynamics will be discussed within a comparative lens, inviting you to reflect on how your own experiences contrast with a sample of those within the Italian culture (Italy). The fourth semester of Italian is designed using a proficiency-based approach to help you develop the ability to communicate effectively in Italian in everyday situations that have real world relevance. Listening, reading, speaking, and writing are integrated into all activities and assessments. By means of self-study preparatory activities designed to encourage students to analyze grammatical points in question before class, so class time can be devoted to meaningful, dynamic interactions with classmates and your teacher in Italian. To further increase your confidence in communicating in Italian, you will also be able to participate in several one-to-one online exchanges with native speakers of Italian throughout the semester. You may end up with a lifelong friend in Italy! Upon successful completion of this course students will be able to demonstrate proficiency by successful completion of the Italian Language Proficiency Exam (LPE) and/or enroll in Italian 3015.

ITAL 4022. Accelerated Beginning Italian for Graduate Research. (; 5 cr. ; Student Option; Periodic Fall & Spring)
This is a fast-paced course that covers the first two semesters of Italian in one semester. Students will be able to move more quickly toward proficiency in Italian to fulfill requirements and/or enroll in advanced Italian courses or expand research options. At the end of this course, you will be able to communicate about topics such as past times, food, family, school, health, sports and much more.

ITAL 4307. Novellistica. (3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to historical, formal and theoretical study of the Italian novella genre (including such alternative forms as the ?racconto?) and the impact of this genre on world literature. The study of the birth and development of the novella genre in Italian. Readings from and discussion of novellas and tales from: The Novellino, Boccaccio, Sacchetti, Bandello, Bigolini, Basile, Verga, Deledda, Moravia, Morante, Calvino, Ferrante prereq: 3015, 3201 or permission from the Italian DUS

ITAL 4970. Directed Readings. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Meets unique requirements decided on by faculty member and student. Individual contracts list contact hours, number of credits, written and other work required. prereq: instr consent

ITAL 5201. Reading Italian Texts: Poetics, Rhetoric, Theory. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Rhetorical/poetic aspects of language and literature. Interpretive methods, theoretical concepts. prereq: grad student or instr consent

ITAL 5203. Italian Travelers: From the Enlightenment to the Present. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall)
Examines literary representations of travel, migration, immigration, exile, and tourism in Italy, from Enlightenment to present. prereq: grad student or instr consent

ITAL 5289. The Narrow Door: Women Writers and Feminist Practices in Italian Literature and Culture. (4 cr. [max 16 cr.] ; Student Option; Periodic Fall & Spring)
Focuses on issues of gender, sexual difference, equality, and emancipation raised by Italian women writers and thinkers from the 19th century to the present.

ITAL 5305. Staging the Self: Theater and Drama in Modern Italy. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall)
Theatrical representations of the self in modern Italy. Focuses on issues of identity, gender, and class in theatrical works ranging from Alfieri's Mirra, Pirandello's Enrico IV to Dacia Maraini's Clyteminestra. prereq: grad student or instr consent

ITAL 5502. Making of Modern Italy: From the Enlightenment to the Present. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Spring)
Italian literary, cultural, and symbolic practices, from Enlightenment to present. prereq: grad student or instr consent

ITAL 5970. Directed Readings. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Meets unique requirements decided on by faculty member and student. Individual contracts list contact hours, number of credits, written and other work required. prereq: instr consent

Japanese (JPN)

JPN 1011. Beginning Japanese I. (5 cr. [max 6 cr.] ; Student Option No Audit; Every Fall & Summer)
Introduction to speaking, reading, writing Japanese.

JPN 1012. Beginning Japanese II. (5 cr. ; Student Option No Audit; Every Spring & Summer)
Introduction to speaking, reading, writing Japanese. prereq: 1011

JPN 3021. Intermediate Japanese I. (5 cr. ; Student Option No Audit; Every Fall)
Intermediate speaking, reading, writing in Japanese. prereq: 1012 or instr consent

JPN 3022. Intermediate Japanese II. (5 cr. ; Student Option No Audit; Every Spring)
Intermediate speaking, reading, writing in Japanese. prereq: 3021 or instr consent

JPN 3031. Third Year Japanese I. (4 cr. ; Student Option No Audit; Every Fall)
Advanced intermediate-level instruction in speaking, reading, writing Japanese. Development of reading proficiency in modern Japanese prose. prereq: 3022 or instr consent

JPN 3032. Third Year Japanese II. (4 cr. ; Student Option No Audit; Every Spring)
Advanced intermediate-level instruction in speaking, reading, writing Japanese. Development of reading proficiency in modern Japanese prose. prereq: 3031 or instr consent

JPN 3290. Japanese Language Teaching Tutorial. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Students tutor beginning students of Japanese and are part of department's Japanese language team. prereq: Grade of A in 4042

JPN 4001. Beginning Japanese I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall & Summer)
Introduction to speaking, reading, writing Japanese. Meets with 1011.

JPN 4002. Beginning Japanese II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring & Summer)
Introduction to speaking, reading, writing Japanese. Meets with 1012. prereq: 4001

JPN 4003. Intermediate Japanese I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Intermediate speaking, reading, writing in Japanese. Meets with 3021. prereq: 4002

JPN 4004. Intermediate Japanese II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Intermediate speaking, reading, writing in Japanese. Meets with 3022. prereq: 4003

JPN 4005. Third Year Japanese I for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Fall)
Advanced intermediate-level instruction in speaking, reading, writing Japanese. Development of reading proficiency in modern Japanese prose. Meets with 3031. prereq: 4004

JPN 4006. Third Year Japanese II for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Spring)
Advanced intermediate-level instruction in speaking, reading, writing Japanese. Development of reading proficiency in modern Japanese prose. prereq: 4005

JPN 4041. Advanced Japanese Conversation and Composition I. (4 cr. ; Student Option; Every Fall)
Practice in advanced spoken/written Japanese. Assignments include essays, summaries, formal interviews in Japanese. prereq: 3032 or instr consent

JPN 4042. Advanced Japanese Conversation and Composition II. (4 cr. ; Student Option; Every Spring)
Practice in advanced spoken/written Japanese. Typical assignments include essays, summaries, formal interviews in Japanese. prereq: 4041 or instr consent

JPN 5040. Readings in Japanese Texts. (; 3 cr. [max 9 cr.] ; A-F or Audit; Every Fall)
Students read authentic materials of various types to increase reading and speaking ability. Topics specified in Class Schedule. prereq: 4042 or equiv or instr consent

JPN 5041. Reading Japanese Texts: Literature and Culture. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course is conducted 100% in modern Japanese, including course materials, lectures, and discussions. Close reading of texts written in modern Japanese, including a recent novel, essays on social phenomena, critical essays on Japanese society, and/or academic papers. Read and translate these texts accurately and critically; discuss them in Japanese, and/or compose an essay entirely in modern Japanese. Pre-requisite: JPN 4042 or equivalent or instructor consent.

JPN 5211. Introductory Classical Chinese I. (3 cr. ; Student Option; Periodic Fall)
Reading excerpts from canonical Chinese texts. Transnational nature of Classical Chinese/its importance in study of East Asian cultures. Taught in English. prereq: Two years of an East Asian language (Chinese, Japanese, Korean) or equivalent or instr consent

JPN 5212. Introductory Classical Chinese II. (3 cr. ; Student Option; Periodic Spring)
Reading excerpts from canonical Chinese texts. Transnational nature of Classical Chinese/its importance in study of East Asian cultures. Taught in English. prereq: 5211 and two years of an East Asian language (Chinese, Japanese, Korean) or equivalent or instr consent

JPN 5993. Directed Studies in Japanese. (1-15 cr. ; Student Option; Every Fall & Spring)
Individual study with guidance of a faculty member. Prereq instr consent, dept consent, college consent.

Jewish Studies (JWST)

JWST 1034. Introduction to Jewish History and Cultures. (HIS; 3 cr. ; Student Option; Every Fall)
This course traces the development of Judaism and Jewish civilizations from their beginnings to the present. With over three millennia as its subject, the course must of necessity be a general survey. Together we will explore the mythic structures, significant documents, historical experiences, narratives, practices, beliefs, and worldviews of the Jewish people. The course begins by examining the roots of Judaism in the Hebrew Bible and the history of ancient Israel but quickly focuses on the creative forces that developed within Judaism as a national narrative confronted the forces of history, especially in the forms of the Persian, Greek, and Roman empires. Rabbinic Judaism becomes the most dominant creative force and will receive our greatest attention, both in its formative years and as it encounters the rise of Christianity and Islam. After studying the Jewish experience in the medieval world, we will turn to Judaism? s encounter with the enlightenment and modernity. The historical survey concludes by attending to the transformations within Judaism and Jewish life of the last 150 years, including a confrontation with the experience of the Holocaust. Woven throughout this historical survey will be repeated engagements with core questions: ?Who is a Jew?? ?What do Jews believe?? ?What do Jews do?? ?What do we mean by ?religion??? ?How do Jews read texts within their tradition?? And perhaps most importantly, ?How many answers are there to a Jewish question?? Students in this course can expect to come away with some knowledge of the Bible in Judaism, rabbinic literature and law, Jewish mysticism and philosophy, Jewish nationalism and Zionism, Jewish culture, ritual, and worship in the synagogue, the home, and the community, and Jewish celebrations of life cycle events and the festivals.

JWST 1201. Bible:Context & Interpretation. (LITR; 3 cr. ; Student Option; Every Fall)
Introduction to the modern academic study of the Old Testament/Hebrew Bible in the historical context of literature from ancient Mesopotamia. Read Babylonian Epic of Creation, Epic of Gilgamesh, Hammurabi, Genesis, Exodus, Psalms. Stories of creation, law, epic conflict, and conquest. prereq: Knowledge of Hebrew not required

JWST 3011. Jewish American Literature: Religion, Culture, and the Immigrant Experience. (DSJ,HIS; 3 cr. ; Student Option; Every Spring)
Immigrant? Jewish? American? What do these labels mean, why are they applied, and do they ever cease to be applicable? Can we distinguish religion from culture, and what are the implications when we try? Why is it frequently asked whether Saul Bellow was ? really? a Jewish writer, but it is impossible to read Philip Roth as anything other than that? How does Grace Paley?s ?Jewishness? come through even when she is writing about non-Jewish characters? We will address these issues and others as we explore the literature growing out of the Jewish immigrant experience in America, as well as the literature by Jewish writers more firmly, though still sometimes anxiously, rooted in American soil. In this course we will engage in a highly contextualized and historicized study of Jewish American literature from the 19th century to today. We will discover in these texts how inherited Jewish culture and literary imaginings, developed over centuries of interaction between Jewish communities and the ? outside world,? get reexamined, questioned, rejected, reimagined, reintegrated, and transformed within the crucible of American experience. The discussions that ensue will also provide a framework for engaging with the creative energies and cultural productivity

of more recent immigrant communities in the United States and beyond. Immigration and the experience of immigrant communities continues to be at the forefront of American consciousness, as immigrants work to create new meanings and new narratives for their lives, and as those who immigrated before them provide contested meanings for the impact of immigration on their own narratives. This course, though grounded in Jewish narratives, will therefore provide students with an expanded vocabulary and perspective for engaging in this central and very current debate within the American experience.

JWST 3013W. Biblical Law and Jewish Ethics. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course.

JWST 3034. Introduction to Jewish History and Cultures. (HIS; 3 cr. ; Student Option; Every Fall)
This course traces the development of Judaism and Jewish civilizations from their beginnings to the present. With over three millennia as its subject, the course must of necessity be a general survey. Together we will explore the mythic structures, significant documents, historical experiences, narratives, practices, beliefs, and worldviews of the Jewish people. The course begins by examining the roots of Judaism in the Hebrew Bible and the history of ancient Israel but quickly focuses on the creative forces that developed within Judaism as a national narrative confronted the forces of history, especially in the forms of the Persian, Greek, and Roman empires. Rabbinic Judaism becomes the most dominant creative force and will receive our greatest attention, both in its formative years and as it encounters the rise of Christianity and Islam. After studying the Jewish experience in the medieval world, we will turn to Judaism? s encounter with the enlightenment and modernity. The historical survey concludes by attending to the transformations within Judaism and Jewish life of the last 150 years, including a confrontation with the experience of the Holocaust. Woven throughout this historical survey will be repeated engagements with core questions: ?Who is a Jew?? ?What do Jews believe?? ?What do Jews do?? ?What do we mean by ?religion??? ?How do Jews read texts within their tradition?? And perhaps most importantly, ?How many answers are there to a Jewish question?? Students in this course can expect to come away with some knowledge of the Bible in Judaism, rabbinic literature and law, Jewish mysticism and philosophy, Jewish nationalism and Zionism, Jewish culture, ritual, and worship in the synagogue, the home, and the community, and Jewish celebrations of life cycle events and the festivals.

JWST 3115. Midrash: Reading and Retelling the Hebrew Bible. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How did the Jews of the first seven centuries of the common era read and understand the Hebrew Bible? What were the problems they faced -- interpretive, historical, theological -- in trying to apply their holy scriptures? This course explores key issues that led to the development of a new form of Judaism in late antiquity, rabbinic Judaism, and its methods of scriptural interpretation. The course's study will focus on the forms and practices of rabbinic scriptural interpretation (midrash) as it developed in Roman Palestine and Sasanian Babylonia, focusing on key narrative and legal passages in the Five Books of Moses (Torah). A main focus of the course will be on the ways the rabbis adapted the Hebrew Bible to express their own core concerns.

JWST 3201. Bible:Context & Interpretation. (LITR; 3 cr. ; Student Option; Every Fall)
Introduction to the modern academic study of the Old Testament/Hebrew Bible in the historical context of literature from ancient Mesopotamia. Read Babylonian Epic of Creation, Epic of Gilgamesh, Hammurabi, Genesis, Exodus, Psalms. Stories of creation, law, epic conflict, and conquest. prereq: Knowledge of Hebrew not required

JWST 3202. Bible: Prophecy in Ancient Israel. (3 cr. ; Student Option; Every Spring)
Survey of Israelite prophets. Emphasizes Amos, Hosea, Isaiah, Jeremiah, Ezekiel, Second Isaiah. Prophetic contributions to Israelite religion. Personality of prophets. Politics, prophetic reaction. Textual analysis, biblical scholarship. Prophecy viewed cross-culturally. prereq: [RelS 1001] or [CNES 1201 or JWST 1201 or RELS 1201 or CNES 3201 or JWST 3201 or RELS 3201]

JWST 3205. Women, Gender, and the Hebrew Bible. (AH; 3 cr. ; Student Option; Spring Odd Year)
How men, women, gender, sexuality is portrayed in Hebrew Bible. Social/religious roles/status of women in ancient Israel. Read biblical texts from academic point of view.

JWST 3206. Sex, Murder, and Bodily Discharges: Purity and Pollution in the Ancient World. (3 cr. ; Student Option No Audit; Every Spring)
"Dirt is dangerous" wrote Mary Douglas more than 50 years ago in her groundbreaking study, Purity and Danger: An Analysis of Concept of Pollution and Taboo. Her work has been influential in ancient Near Eastern and Mediterranean studies when dealing with issues of sacred/profane, purity/pollution, and ritual sacrifice and purification. Douglas' work provides a framework within which to understand ancients' thinking about these concepts that range from the sacredness of space and of bodies to perceived pollutions caused by bodily leakage or liminal stages of life and death. In this course, we will examine Douglas' theory in light of ancient evidence, with special attention to ancient Israelite literature (the Tanakh or Old Testament) and ancient Jewish literature (the Dead Sea Scrolls), but we will also analyze other ancient Near Eastern and Mediterranean examples of purity and pollution (from epigraphical and documentary evidence).

JWST 3502. Ancient Israel: From Conquest to Exile. (; 3 cr. ; Student Option; Periodic Fall)
Israel and Judah were not states of great importance in the ancient Near East. Their population and territory were small, and they could not resist conquest by larger, more powerful states like Assyria and Rome. Yet their ancient history matters greatly today, out of proportion to its insignificance during the periods in which it transpired. The historical experiences of the people of Israel and Judah were accorded religious meaning and literary articulation in the Hebrew Bible (the Old Testament), which became a foundational text for Judaism, Christianity, and Islam. Essential features of Western as well as Islamic civilization are predicated on some element of Israel?s ancient past, as mediated through the Bible; therefore it behooves us to understand that past. But the Bible is a religious work, not a transcript of events, and the history of ancient Israel is not derived merely from reading the biblical accounts of it. Archaeological excavations have revealed the physical remains of the cultures of Israel and neighboring lands, as well as bringing to light inscriptions, documents, and literary works produced by those cultures. These sources, which complement and sometimes contradict the accounts conveyed in the Bible, provide the basis for reconstructing a comprehensive

history of ancient Israel. This course covers the history of Israel and Judah from the Late Bronze Age (c. 1550-1200 BCE), by the end of which Israel had emerged as a distinct ethnic entity, to the period of Roman rule (63 BCE-330 CE), which saw the final extinction of ancient Israel, represented by the kingdom of Judea, as a political entity. Knowledge of this history is based on archaeological, epigraphic, and literary sources, including the Hebrew Bible. N.B.: Students should be aware that the study of history, like all the human and natural sciences, is predicated on inquiry, not a priori judgments. Accordingly, the Bible is not privileged as an intrinsically true or authoritative record. No text is presumed inerrant, and all sources are subject to scrutiny, in the context of scholarly discourse. Biblical texts are treated just like all other texts, as the products of human beings embedded in a historical context, and as the subject of analysis and interpretation. Persons of all faiths and of no faith are equally welcome to participate in such scholarly discourse. However, students who feel that their own religious beliefs require an understanding of the Bible that is antithetical to the foregoing statements are cautioned that they may find themselves uncomfortable with this course.

JWST 3504. Apocalypticism, Cosmic Warfare, and the Maccabees: Jewish Strategies of Resistance in Antiquity. (3 cr. ; Student Option; Periodic Spring)
The rise of Hellenistic kingdoms in the ancient Mediterranean and Near East created a variety of responses from local, subjugated peoples, and some of the most documented cases are those of Jewish populations in Koele-Syria/Palestine. The main objective of this course is to analyze Jewish responses to imperial rule and military conflict during the Hellenistic and early Roman periods (c. 300 B.C.E. - 150 C.E.), but we will also spend time examining the broader picture of how local, ancestral groups fared under foreign rule. Along with discussing pertinent archaeological evidence, we will discuss Jewish literature and documentary material from this period, including, the sectarian documents of the Dead Sea Scrolls, the Book of Judith (a Jewish "novel"), the Books of Daniel and the Maccabees (all of which provide historical information about the Maccabean revolt and rise of the Hasmoneans), and the writings of Josephus (a Jewish writer who witnessed the Roman takeover of Palestine in the first century C.E.). This course will stay within the confines of the ancient evidence and not examine later interpretations when analyzing each historical period; it will begin with Ptolemaic control of the region and conclude with the Bar Kokhba revolt, its aftermath, and the resilience of Jewish populations in northern Palestine. Topics that will be examined in depth are messianism and apocalypticism, the Jerusalem Temple, Jewish ancestral traditions (which include biblical literature), and theoretical models used by scholars to analyze power relationships in antiquity.

JWST 3511. Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700. (GP,HIS; 3 cr. ; Student Option; Fall Odd Year)
Diversity of social/cultural interactions between Muslims and Jews and between Islam and Judaism since 1700. What enabled the two religious communities to peacefully coexist? What were causes of conflict? Why is history of Muslim-Jewish relations such a contested issue?

JWST 3512. History of Modern Israel/ Palestine: Society, Culture, and Politics. (GP; 3 cr. ; Student Option; Fall Odd Year)
History of Zionism/Israel. Arab-Jewish conflict, tensions between religious/Jews. Relationships between Mizrahi, Ashkenazi, Russian, Ethiopian, Arab citizens. Israeli cultural imagery. Newsreels, political posters, television shows, films, popular music.

JWST 3515. Multiculturalism in Modern Israel: how communities, ideologies, and identities intersect. (GP; 3 cr. ; Student Option; Periodic Spring)
This course focuses on the way various cultural groups in Israel attempt to achieve cultural recognition. Students will learn how various ethnic and religious groups shape their identities through process of acculturation and struggle. Students will learn about several Israeli cultures by reading literature, book chapters and case-studies, and watching movies, all of which center on these debates. Students will examine various case studies centered on these multicultural issues in Israel and will discuss and reflect on the implications of the issues raised by the course material for the international community, the United States, and for their own lives.

JWST 3520. History of the Holocaust. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Study of 1933-1945 extermination of six million Jews and others by Nazi Germany on basis of race. European anti-Semitism. Implications of social Darwinism and race theory. Perpetrators, victims, onlookers, resistance. Theological responses of Jews and Christians.

JWST 3601. Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood. (AH; 3 cr. ; Student Option; Fall Odd Year)
German/American films by famous directors who left Europe in Nazi period. Analysis of films by Fritz Lang, Max Ophuls, Robert Siodmak, Otto Preminger, Billy Wilder, Douglas Sirk, and others. Films as art works and as cultural products of particular social, political, and historical moments.

JWST 3606. Christians, Muslims, and Jews in the Middle Ages. (GP,HIS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
A Pew Research survey of the global religious landscape in 2010 found 2.2 billion Christians (31.5% of the world's population), 1.6 billion Muslims (23.2%), and 14 million Jews (.2%). In this class, we explore how the histories of these religious communities became deeply entangled in an age of diplomacy, trade, jihad, and crusade.

JWST 3631. Jewish Writers and Rebels in German, Austrian, and American Culture. (; 3 cr. ; Student Option; Periodic Fall)
Literary/cultural modes of writing used by Jewish writers in Germany, Austria, and America to deal with problems of identity, anti-Semitism, and assimilation. Focus on 20th century. All readings (novels, poetry, stories) in English. prereq: No knowledge of German required; Extra work in German must be done in order to count this course toward a German minor or a German, Scandinavian, Dutch major.

JWST 3633. The Holocaust: Memory, Narrative, History. (GP,HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
Seventy years after the end of the second world war, the Holocaust continues to play a formative role in public discourse about the past in Germany and Austria. As the event itself recedes into the past, our knowledge about the Holocaust has become increasingly shaped by literary and filmic representations of it. This course has several objectives: first, to deepen students' historical knowledge of the events and experiences of the Holocaust, and at the same time to introduce critical models for examining the relationship between personal experience, historical events, and forms of representation. This class will introduce students to the debates about the politics of memory and the artistic representation of the Holocaust, with special focus on public debates about the complex ways in which Holocaust memory surfaces in contemporary Germany and Austria, and by the accrual of layers of text and discourse about the Holocaust. Additional topics will include Holocaust testimony; Holocaust memoirs, and 2nd and 3rd generation Holocaust literature, the Historians' Debate of the 1980s.

JWST 3729. Nazi Germany and Hitler's Europe. (3 cr. ; Student Option; Periodic Fall & Spring)
Comprehensive exploration of Third Reich. How Nazis came to power, transformations of 1930s, imposition of racial politics against Jews/others, nature of total war. Historical accounts, memoirs, state documents, view films.

JWST 3745. The Holocaust in France: Literature, History, Testimony. (3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the event of the Holocaust (which we call "Shoah" in France since the 80s and especially since the film of the same name by Claude Lanzmann) in literature, film, and archives. France has a complex relationship with Jews since the Middle Ages. During the French Revolution (1789), then under the Empire (Napoleon Bonaparte, 1800-1815), the Jews benefitted from political emancipation. The Republic defended the equality of Jews before the law as French citizens. But France was also the country of political anti-Semitism and of the Dreyfus Affair (there were in the nineteenth century some very virulent anti-Semitic propaganda writers, for example, Edouard Drumont, author of Jewish France, in 1880, just before the Dreyfus Affair). This history of the Jews in France culminates with the Vichy regime, the policy of collaboration with Nazi

Germany, antisemitic writings and propaganda emanating from important writers such as Louis-Ferdinand Celine and politicians, and the deportation of part of the Jewish population to the extermination camps. How does this story affect fictional writing and debates on how to represent this event? More than a course on the Holocaust, we explore the story of its reminiscence in French culture. It is not a history class, but a class in culture, literature, memory, and testimony. FREN 3345 and 3745 meet together. Both FREN 3345 and 3745 are taught in English. Reading and writing assignments for FREN 3345 are in modern French. FREN 3345 may count towards the major or minor in French Studies. Reading and writing assignments for FREN 3745 are in English. FREN 3745 does not count towards the major or minor in French Studies. prereq: None

JWST 3896. Jewish Studies Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
The Jewish Studies Internship is intended to support an applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals which are related to the field of Jewish studies. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate knowledge and theories gained previously within the classroom context with practical application and skill development in professional or community settings, alongside academic assignments intended to reflect upon, inform, and reinforce the workplace experiences. The skills and knowledge learned within the workplace setting should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor, and the instructor is responsible for evaluating the specifically academic component of the internship course. Academic credit reflects academic learning, with the understanding that such learning may also take place within the workplace environment.

JWST 3993. Directed Study. (1-4 cr. [max 8 cr.] ; A-F only; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq: instr consent

JWST 4000W. Final Project, Writing Intensive. (WI; 4 cr. ; A-F or Audit; Periodic Fall & Spring)
Independent research/writing under supervision of a faculty sponsor. A student may approach any JwSt faculty member to develop a program of independent research/writing in an area of student's choosing. prereq: JwSt major, permission of dir of undergrad studies

JWST 4001W. Final Project, Writing Intensive. (WI; 1 cr. ; A-F or Audit; Every Fall & Spring)
Independent research and writing, under supervision of a faculty sponsor. Student makes a contract with instructor to write an in-depth research paper, or comparable project, to be completed in conjunction with a JwSt 5xxx course. prereq: concurrent registration is required (or allowed) in 5xxx, JwSt major, permission of dir of undergrad studies

JWST 4315. Never Again! Memory & Politics after Genocide. (GP; 3 cr. ; A-F or Audit; Spring Odd Year)
Course focuses on the social repercussions and political consequences of large-scale political violence, such as genocide, war crimes, and crimes against humanity. Students learn how communities and states balance the demands for justice and memory with the need for peace and reconciliation and addresses cases from around the globe and different historical settings. prereq: SOC 1001 or 1011V recommended, A-F required for Majors/Minors.

JWST 4319. "Jews will not replace us!" Global Antisemitism from its Origins to the Present. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course will explore the topic of antisemitism, its history and cultural logic, and the relation to other forms of exclusion tied to race, religion, and citizenship in modern times. Starting with the history of Jewish emancipation in Europe and the subsequent debates about the "Jewish Question," students will learn to identify the key features of political antisemitism and the ways that antisemitism has been explained by different social theories, including Marxism, Functionalism, and Critical theory. The course will examine the differences and continuities between older theological forms of anti-Judaism and modern antisemitism, the connections between antisemitism, nativism, and xenophobia in the US and globally, and engage with current debates regarding the correlation between anti-Zionism and antisemitism. We will also explore Jewish social, political, and ideological responses to antisemitism in Europe and the US, from the Holocaust to the present. Pre-reqs: sophomore or above; Soc 3701 recommended; soc majors/minors must register A-F

JWST 5013W. Biblical Law and Jewish Ethics. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course.

JWST 5115. Midrash: Reading and Retelling the Hebrew Bible. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How did the Jews of the first seven centuries of the common era read and understand the Hebrew Bible? What were the problems they faced -- interpretive, historical, theological -- in trying to apply their holy scriptures? This course explores key issues that led to the development of a new form of Judaism in late antiquity, rabbinic Judaism, and its methods of scriptural interpretation. The course?s study will focus on the forms and practices of rabbinic scriptural interpretation (midrash) as it developed in Roman Palestine and Sasanian Babylonia, focusing on key narrative and legal passages in the Five Books of Moses (Torah). A main focus of the course will be on the ways the rabbis adapted the Hebrew Bible to express their own core concerns.

JWST 5204. The Dead Sea Scrolls. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to Dead Sea Scrolls and Qumran. Contents of Dead Sea Scrolls, significance for understanding development of the Bible. Background of Judaism and Christianity. Archaeological site of Qumran. Open to graduate students across the college; knowledge of classical Hebrew will not be required. The course is open to upper level undergraduate students with permission of the instructor.

JWST 5992. Directed Readings. (; 1-12 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent

Journalism & Mass Communicat (JOUR)

JOUR 1001. Media in a Changing World. (SOCS,TS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
In an era when almost everybody's a content creator and just about every company is connected with media, what makes mass communication different from other forms of message exchange? We'll examine journalism,

advertising, public relations, video gaming, music recording, music and more. We'll think about issues like free speech, "fake news," censorship, social media, demographics, psychographics and graphic content. Hear from mass media professionals who provide real-world, real-time material for discussion and debate. This class covers ground that is shifting by the day and uses current cases to help you apply what you learn and sharpen your own media literacy skills.

JOUR 1001H. Media in a Changing World. (SOCS,TS; 3 cr. ; A-F or Audit; Every Fall)
In an era when almost everybody's a content creator and just about every company is connected with media, what makes mass communication different from other forms of message exchange? We?ll examine journalism, advertising, public relations, video gaming, music recording, music and more. We'll think about issues like free speech, fake news, censorship, social media, demographics, psychographics and graphic content. Hear from mass media professionals who provide real-world, real-time material for discussion and debate. This class covers ground that is shifting by the day and uses current cases to help you apply what you learn and sharpen your own media literacy skills.

JOUR 1501. Digital Games and Society. (AH,TS; 3 cr. ; Student Option; Every Fall & Spring)
Digital games have a wide-ranging impact on our culture and society and are one of the fastest-growing sectors of the entertainment media industry, generating enormous profits for the game companies. In this course, you will: (1) be introduced to the academic study of video games; (2) examine digital games as forms of communication and interactive storytelling, as well as games of entertainment, commerce, social activism, professional training, and education; (3) consider the impact of mobile media, particularly for games and gameplay; (4) discuss next-generation virtual reality technology that may change the way we think about immersive media experiences; and (5) study the history, ethics, and socio-cultural impact of digital games and related technologies.

JOUR 1912. Winning People Over: The Art and Science of Persuasion. (; 3 cr. [max 6 cr.] ; A-F only; Every Spring)
Seven days a week, everywhere in the world, people are busily trying to persuade other people. Students want their professors to accept late work. Professors want students to throw themselves into their coursework. Advertisers want consumers to buy their products. PR practitioners want people to think more highly of their clients. Newspaper editorialists want readers to change their minds. Defense lawyers want juries to acquit their clients. And politicians want constituents to vote for them. Some of these people are very effective persuaders; others less so.
In this course, we will search out the best techniques for persuading different kinds of people to do various things. We'll study really good textbooks, meet top-quality professional persuaders, and search out real-life instances of good and bad persuasive efforts. And we'll try our hands at persuading someone to do something that's important to us. All the while we will be trying to build our own theories of persuasion and maybe have some fun!

JOUR 1914. Digital Truth-Making: Media Manipulation, Rumors, and Propaganda in Today?s News Media. (; 3 cr. ; A-F only; Periodic Spring)
Various forms of misleading information? including online rumors, political propaganda, and media manipulation?has become part of contemporary media and politics. These forms of misleading information can be destructive for the fabric of society as well as erode public trust in the media, politics, businesses, and other institutions. Misleading information can also intensify political and ideological polarization, and shape individual and collective attitudes. This course considers the role of actors including journalists, malignant players, and social media platforms, as well as the socio-political contexts that underlie the problem of misinformation. Through discussion, students will learn about key concepts related to the contemporary information disorder ranging from misinformation, infodemic, and publicity and propaganda. And students will discuss and learn how to critically evaluate content using various verification techniques used in media organizations worldwide.

JOUR 3004. Information for Mass Communication. (3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
The ability to acquire, evaluate, and use different information sources are essential skills for professional communicators and citizens. This course teaches the process of information gathering, evaluation, and implications through the lens of mass communication. A case study is used to study this process in depth throughout the semester. prereq: Jour major, Strat Comm major, Mass Comm major or Mass Comm minor or approved BIS/IDIM/ICP program

JOUR 3004H. Information for Mass Communication. (; 3 cr. [max 6 cr.] ; A-F only; Every Spring)
The ability to acquire, evaluate, and use different information sources are essential skills for professional communicators and citizens. This course teaches the process of information gathering, evaluation, and implications through the lens of mass communication. A case study is used to study this process in depth throughout the semester. prereq: Honors [Jour major, Strat Comm major, Mass Comm major or Mass Comm minor or approved BIS/IDIM/ICP program]

JOUR 3005. Mass Media Effects. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Does the media cause social problems, or just reflect them? Why and how have mass media been feared, bemoaned, used, and dismissed as tools to change public beliefs, attitudes, and behavior? This course explores a century's worth of thinking as to how and when media might have such effects. We examine media influence in a range of contexts, including political advertising, health campaigns, video game violence, pornography, and educational television. We approach the topic largely from a social science perspective (for example, by reviewing experimental tests of the effects of media violence) but we will address some of the advantages and limitations inherent in looking for effects in that way. Although our focus is on mass media, interpersonal and digital media sources will be considered as well.

JOUR 3006. Visual Communication. (3 cr. ; Student Option; Every Fall & Spring)
From Instagram to YouTube to memes-we live in a visual culture. How can we interpret this flood of images? Learn how to analyze advertisements, photographs, television, and social media from multiple perspectives. Historical, cultural, and ethical approaches unearth the changing role of visual media in society. You'll actively interpret current images to learn how to effectively communicate with visuals.

JOUR 3007. The Media in American History and Law: Case Studies. (HIS; 3 cr. ; Student Option; Every Fall)
In this class, you'll study news media and their social, cultural, and political impact during a specific historical time period, based on the instructor's expertise and area of research. Examples include: Journalism during the Civil War; Mass media and the African American struggle for civil rights; the Sixties and rise of the New Journalism. Instructors of the course may vary from term to term and students may wish to contact the instructor for information on the specific focus of his or her section.

JOUR 3101W. News Reporting and Writing. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course is the foundation for training as a working journalist--students will learn how to write and report news accurately, quickly, fairly and with a clear, informative style that reflects today?s news demands. Its main focus is on news writing. Students will be expected to model proper journalistic forms and style, for a variety of platforms, as well as demonstrate proper English usage, grammar, spelling and style. Students will also be asked to think about ? and analyze ? news and the varying ways it is presented in today?s media world. At the end of the course, students must demonstrate the ability to write clearly, report accurately, adhere to AP style, meet deadlines and judge what is newsworthy. prereq: [Jour 3004 or 3004H or concurrent registration], [Jour major, Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3102. Multimedia Production and Storytelling. (3 cr. ; A-F only; Every Fall & Spring)
This course is an introduction to photography, video, audio and slideshow storytelling and production; understanding the differences in content for different media; and understanding content management. Students will learn basic skills in understanding the differences in content for different platforms (Web, print, radio, mobile and television), in identifying, writing and producing different story forms

for video, audio and social media and in understanding content management. Students will tell stories using a variety of technologies to gather, edit and disseminate information for journalism and strategic communication messages. We?ll work to understand how each technology has a particular audience or application, apply visual principles, and use the principles of visual grammar. Students will gain a basic proficiency in still and video camera operation, in video, audio and mixed media writing and production, in creating images for a video and social media or other mixed media story. They will also learn to manage and publish content in an organized manner. prereq: [Jour 3004 or 3004H or concurrent registration], [Jour 3101 or concurrent registration or Jour 3279 or concurrent registration or Jour 3241 or concurrent registration], [Jour major, Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3103. Interactive and Data Journalism. (3 cr. ; A-F only; Every Fall & Spring)
This course teaches concepts, tools and techniques for effective data journalism storytelling on digital platforms. Students will develop ways to display stories through the most important emerging tools for using structured information in journalism, including learning the fundamentals of gathering data and performing analyses to find stories and creating visualizations to illustrate trends and patterns. Students will use maintain a blog to curate their work, learning how to use what they build in one of the most common content management systems. Students will rely on open-source tools, but will also learn basic coding to customize those tools for more effective digital presentation. Students will also learn about and critique other digital storytelling formats, user experience concepts and web analytics. prereq: [Jour 3004 or 3004H], [Jour 3101 or Jour 3279W], [Jour major, Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3121. Intermediate News Reporting. (3 cr. ; A-F only; Every Fall & Spring)
This course is a skills-based course designed to teach journalism students how to report and write the types of stories that are central to the basic beats in most newsrooms. The course expands upon the competencies learned in JOUR 3101, but requires more in-depth records searches, interviewing and writing. Students also learn the basics of such subjects as libel law, public records law and media ethics. Students will learn in this course how to find news that matters to people, and how to write it so that readers understand it. Whether a student is planning a career in newspapers, television or other media, they will learn enough to get started as a reporter and to understand how things work (or don't work) in a real newsroom . prereq: [Jour 3004 or 3004H], Jour 3101, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3155. Editing for Print and Digital Audiences. (3 cr. ; A-F only; Every Spring)
In this course, students will learn the fundamentals of editing for print and digital publications. Students will learn to edit copy, to exercise news judgment and to improve the flow and accuracy of stories. The course will also cover how to write search-engine friendly headlines, to utilize online tools for fact-checking and to execute compelling visual designs for digital and print. Successful students will develop an excellent understanding of AP style, hone their ability to improve copy and learn to navigate legal, ethical and production challenges. These skills are particularly important in the modern newsroom ? where economic pressures have removed some layers of fact-checking and editing and forced traditional roles to shift and expand. prereq: [Jour 3004 or 3004H], Jour 3101, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3173W. Magazine & Feature Writing. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course is about writing feature stories for magazines. You?ll learn how that enterprise differs from newspaper writing. You?ll also learn about the various types of magazines that exist as well as what constitutes a magazine in this digital age. We will focus on niche ? on the importance of writing for the magazine?s audience. You?ll learn how to sell your work to different markets and platforms. You?ll also discover, you if don?t already know it, that the best magazine writing is rooted in solid reporting. You?ll be doing more interviewing, fact-finding and field work than you may have imagined, all of which will improve your writing. prereq: [Jour 3004 or 3004H], [Jour 3101 or Jour 3279W], [Jour major, Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3201. Principles of Strategic Communication. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
So, you have declared your journalism major and selected the strategic communication track? Or maybe, you are studying something completely different, but you have heard that advertising and public relations are great fields to work in? In this class, we will foster career exploration as you learn about key areas of advertising and public relations (history, theory, ethics, etc). In the second half of the class, you will take a journey from media consumer to strategic planner as you create a strategic communication campaign as part of a group project that will start off your strategic communication portfolio. prereq: [Jour 3004 or 3004H or concurrent registration], [Jour major, Strat Comm major, Mass Comm major or Mass Comm minor or approved BIS/IDIM/ICP program]

JOUR 3241W. Advertising Strategy and Creative Development. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course is focused on giving strategic communications students the tools needed to better understand how the creative process works to help solve business problems. We will accomplish this by studying successful advertising campaigns (current and past) and by creating concepts for campaigns. Advertising today is more than just the development of a traditional TV or print ad. Creative concepts include the traditional advertising platforms of TV, Radio, Print and Outdoor along with the vast array of digital platforms. The strategic and creative development experiences and discussions from this class will help aid students in the development of decision-making and concept development skills that are needed to pursue a career in this field. prereq: [Jour 3004W or 3004V], Jour 3201, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3251. Evaluative Research in Strategic Communication. (; 3 cr. ; A-F only; Every Fall & Spring)
This course is designed to teach strategic communication students the fundamentals of research used by communication and marketing research professionals to evaluate the effectiveness of campaigns. Students will be exposed to various data collection and analysis methods with particular emphasis on quantitative research methods (e.g., surveys, experiments, digital analytics) commonly used to collect data to aid strategic communication decision making. prereq: [Jour 3004W or 3004V], Jour 3201, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3253. Account Planning. (; 3 cr. ; A-F only; Every Fall & Spring)
This course examines the role of account planning in integrated marketing communications development in today?s complex cultural and media environments. It is designed to teach students how to use research and analytic tools to identify strategic insights about target consumers. These insights will then be used to develop effective brand positions and message strategies. Students will develop an awareness and understanding of the skills needed to become an account planner and an opportunity to apply those skills in various situations and settings. Although account planners conduct both formative and evaluative research using both primary and secondary research approaches throughout a campaign, the emphasis in this course will be on qualitative formative research, brand planning, positioning and message development. prereq: [Jour 3004W or 3004V], Jour 3201, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3261. Media Planning. (3 cr. ; A-F only; Every Fall & Spring)
The objective of the course is to provide a basic understanding of the media strategy, planning, and selection process within the context of the broader marketing communications process. The course will cover paid, owned and earned media across advertising, digital (including social), and direct marketing disciplines. The media planning process incorporates subjective decision making after reviewing significant amounts of objective data. The development of recommendations with supporting rationale

is the basis for the process. Students are introduced to this process focusing on the prioritization of strategies and media selection within a fixed budget. Marketing and media examples covering number industries to help students grasp theoretical concepts. The media selection process incorporates the demographic media consumption patterns of the American consumer. Students will also be exposed to the measurement methodologies for all major media. The course will cover the strengths and weaknesses of various media and how they are applied to accomplish marketing communication objectives. Students will garner hands on experience with data and planning resources. prereq: [3004W or 3004V], [3201 or 3202], [jour major or approved BIS/IDIM/ICP program]

JOUR 3275. Digital Strategy in Strategic Communication. (3 cr. ; A-F only; Every Fall & Spring)
This course is designed to provide a basic understanding of digital communications and strategy development. The course covers the digital communications planning process and emphasizes how to develop effective communications strategies in today?s digital-centric environment. The digital revolution of the last fifteen years makes it imperative for communications professionals to understand how to evaluate and select digital marketing channels to best achieve business goals. This course is designed to assist students to build the professional skills they need to compete in a digital world. This course teaches students how to develop a digital communications plan from start to finish. Students will increase their understanding of how digital communications relate to more traditional marketing and PR tactics. Students will move through a discovery process learning to analyze consumers? digital marketing behavior, their demand for content, the effectiveness of various social media channels including website performance. The course will review current digital tools, trends and tactics; weighing the difference between what is ?hot? versus which channels can best be used to achieve a brand?s communications goals. Students will leave the course with an increased knowledge of digital communications and ability to evaluate and strategically apply digital marketing techniques in a real-world communications environment. prereq: [Jour 3004W or 3004V], Jour 3201, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3279W. Professional Writing for Strategic Communication. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course is designed to develop writing expertise for public relations and advertising agency work, corporate and non-profit strategic communication and development of tactical thinking and publicity techniques. The course focuses on developing the essential writing capabilities needed to complete a wide variety of projects in public relations and related strategic communication professions. It is designed to help students gain experience in researching, interviewing, writing, and producing materials used by strategic communication professionals. These include biographies, press releases, fact sheets, backgrounders, newsletters, brochures, speeches, A/V scripts and other materials for broadcast. Discussion of public relations tactics, the role of public relations and advertising agencies and various media channels is integrated into the course ? so that students should develop a strong understanding of the many aspects of the strategic communication profession. Theories of persuasion, social influence and compliance gaining are interwoven into class discussions. prereq: [Jour 3004W or 3004V], Jour 3201, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3321. Media Design. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
This course will introduce students to basic skills in visual communication through hands-on projects, observation, discussion, and collaboration. Students will learn the vocabulary necessary to communicate effectively about graphic design processes. Students will develop a sense of their own design aesthetic and be able to talk about their solutions to design communication challenges by producing and presenting the projects assigned in the course. They also will learn to provide and receive constructive criticism and encouragement with their peers through both process and final class project critiques. Students will become familiar with the tools and processes necessary to execute simple design projects, from concept through production. Course projects will facilitate diversity through projects that reflect each students interests and research. prereq: [Jour 3004 or 3004H or concurrent registration], [Jour major, Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3451. TV, Radio and Digital News Reporting. (3 cr. ; A-F only; Every Fall & Spring)
This course is the introductory broadcast and digital writing and reporting course. It is the student?s introduction to writing in broadcast and digital style, video photojournalism and digital video editing. This is ?not? a production class. It will apply journalism to the production techniques learned in JOUR 3102. Also included: source and story development, ethical decision-making, audio storytelling and vocal and on-camera delivery. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3102, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 3551. The Business of Digital Media: Innovation, Disruption, and Adaptation. (TS; 3 cr. ; Student Option; Every Spring)
Digital media enterprises have uprooted many established industries and continue to be among the most important factors shaping our economy and society today. Where do these innovations come from? Why do some startups prosper while others fail? How do legacy firms respond to disruptions to their business models? What makes adaptations possible? What makes them risky? Learn to analyze and evaluate the economic strategies of existing digital media firms across various sectors of society including news, entertainment, social media, mobile, and retail. Assess their impacts on cultural and civic life for better and for worse. Use these skills to incubate your own ideas for the next great media innovations of the future.

JOUR 3552. Technology, Communication & Global Society. (GP; 3 cr. ; Student Option; Every Fall)
This course examines the various ways in which technology continues to evolve, and to have a role in ongoing societal changes. The course focuses on unpacking the specific ways in which technology are evolving, and connecting those changes to impacts on communication and media A variety of theories or perspectives relevant or related to technology use and global communication will be considered to help make sense of the interplay between the technology use and societies in a global setting. The course is divided into three main parts: first, understanding of the specifics of relevant technology; second, connecting the technical features to theoretical views of technology; third, examining global patterns of technology use in media and communication. The readings and discussions place special emphasis on specific forms of technology, including mobile phones, Web, and social media. Grounded in a global context, we will investigate the political, cultural, social, technological, and economic conditions that shape and are shaped by the presence of the Internet at the national and cross-national levels; the effects of technology use on the form and content of mass communication at the global level; and the implications of technology use for human and social relations across national borders.

JOUR 3590. Special Topics in Mass Communication: Context. (; 3 cr. [max 6 cr.] ; A-F or Audit; Periodic Fall & Spring)
Context course not regularly offered. Topics specified in Class Schedule.

JOUR 3614. History of Media Communication. (HIS,TS; 3 cr. ; Student Option; Every Spring)
In the history of humankind, there have been five major changes in how we communicate and we're in the middle of the latest revolution. This class helps you make sense of these uncharted waters by exploring how humanity adopted, and adapted to, past disruptions. From the alphabet to the internet and social media, learn how technological innovations in the media have changed not only how people share information and values but also what people have communicated throughout history. We will learn about these five phases in mediated communication over 5,000 years, and how they relate to major changes in politics, society and culture. And then we'll use history's lessons to peek into the future: When presidents tweet and everyone's foodie photos are on Instagram, how does the world communicate?

JOUR 3615. History of the Documentary. (3 cr. ; Student Option; Every Fall)
Invention of photographic media. Truth-value of factual versus fictive representations. Influence

of political/economic contexts on form/content. Convergence of distinct realms of media practice. Role of media maker. Documentary photography/film. Screenings of landmark films, photographs.

JOUR 3690. Special Topics in Journalism Skills. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Journalism professional skills course not regularly offered. Topics and prerequisites specified in Class Schedule. Students must be Journalism majors and meet the prerequisites for the specific course offering.

JOUR 3741. Diversity and Mass Communication. (DSJ; 3 cr. ; Student Option; Every Fall)
How are our perceptions of crime been influenced by the news? How do social movements use media to share their messages? What can we as audiences do? Social media, news and entertainment media help shape our ideas about identity and differences. Learn how representation and inclusion have been negotiated through media with a particular focus on local case studies. Topics include race, ethnicity, social class, physical ability, and gender. Students will learn how to use media literacy to build a just and equitable society.

JOUR 3745. Mass Media and Popular Culture. (AH,DSJ; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Popular culture is everywhere. Social media, film, music, video games, television, websites, and news bring popular culture into our daily lives. In this class, we will examine popular culture in modern and historical contexts through various mass communication, sociological, and cultural theories. Is popular culture of the people? or dictated by corporate interests? What social and commercial pressures result in stereotypes, misrepresentation and exclusion in popular culture? Does popular culture mirror or shape social reality? This course will provide you with the tools to become active and thoughtful consumers of media and popular culture.

JOUR 3751. Digital Media and Culture. (AH,TS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
How have digital media innovations like social media, mobile phones, artificial intelligence, drones and games shaped and been shaped by a culture and society globally? Learn to critically examine the function of digital media in your life. Take away a socio-historical understanding of digital media innovation, and the social, political, and economical impact of new media in creativity, industry, and culture from a cross-disciplinary perspective. Topics range from the concept of branding in an online context, to the varied uses of digital media in the context of journalism, social mobilization, law and privacy, business, globalization, content creation, and beyond. You will read, discuss, and debate cutting edge material from documentaries, podcasts, popular press, and academic literature. This course balances local contexts with global perspectives, and provides details into the practicalities of working and living in a new media environment.

JOUR 3757. Principles of Health Communication Strategy. (3 cr. ; Student Option; Every Fall)
Health information is in the news, nearly every corner of the internet, on your favorite television show, and advertising campaigns. Using principles of mass communication, public health, sociology, and psychology this course explores how mediated health content impacts students' lives at both micro- and macro-levels. We will explore questions such as: how do individuals use media to achieve health-related goals? What role does media and health literacy play in achieving these goals? What effect does health information in entertainment media or strategic public health campaigns, for example, effect your own health-related beliefs and behaviors? To what extent do media portrayals of health and illness impact society?s understanding of complex health issues such as mental health, substance use disorder, or cancers? What influence does news coverage of health issues have on health policy and health reform?

JOUR 3771. Media Ethics. (CIV; 3 cr. ; Student Option; Every Fall & Spring)
Citizens expect journalists to separate fact from falsehoods, opinion and propaganda. But is it possible for journalists to be unbiased and objective? Advertisers are expected to push products. But is it acceptable to mislead by exaggerating what the product can do? Public relations professionals must protect a company's brand. But what should they do when a company becomes entangled in a scandal? This course examines the ethical and unethical ways that communicators respond to such challenges, and uses real-life examples to identify values and principles that can lead to sound, ethical decisions under the most difficult circumstances. Learn about ethical communication on all platforms, from television to social media to newspapers and magazines. Build a solid foundation for your own ethical thinking that can guide you as a student and as a professional communicator.

JOUR 3775. Administrative Law and Regulation for Strategic Communication. (CIV; 3 cr. ; Student Option; Every Spring)
Learn practical legal skills and ethics as they pertain to marketing, public relations and advertising by focusing on the actions of the Federal Trade Commission, the Federal Communications, and the Federal Elections Commission. Learn about the administrative process including adjudication and rule making. Learn through a range of legal, policy and ethics discussions ranging from the First Amendment, the regulation of commercial speech, advertising deception, substantiation of material claims, digital privacy, contesting, political advertising, and controls on native advertising and social media influencers.

JOUR 3776. Mass Communication Law. (3 cr. ; A-F only; Every Fall & Spring)
The First Amendment protects the freedom of speech, and of the press. Does that mean that journalists can write anything they want, broadcast any video images they choose, or go wherever they like in order to gather news? In this course, we will examine significant court decisions that have defined the legal rights and privileges of journalists. We will look at statutes like the Freedom of Information Act and journalist 'shield laws.' We will consider how new technology raises questions, and challenges, about how to balance First Amendment freedoms with other interests, like privacy and national security. Learn legal rules and principles, and apply them in classroom debate and discussion and in written exercises and examinations. The goal is to understand how the First Amendment and other laws protect the rights of freedom of expression, not just for journalists, but for all of us.

JOUR 3776H. Mass Communication Law. (; 3 cr. ; A-F only; Every Spring)
The First Amendment protects the freedom of speech, and of the press. Does that mean that journalists can write anything they want, broadcast any video images they choose, or go wherever they like in order to gather news? In this course, we will examine significant court decisions that have defined the legal rights and privileges of journalists. We will look at statutes like the Freedom of Information Act and journalist "shield laws." We will consider how new technology raises questions, and challenges, about how to balance First Amendment freedoms with other interests, like privacy and national security. Learn legal rules and principles, and apply them in classroom debate and discussion and in written exercises and examinations. The goal is to understand how the First Amendment and other laws protect the rights of freedom of expression, not just for journalists, but for all of us. prereq: Honors

JOUR 3790. Special Topics in Strategic Communication Skills - Execution. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Strategic Communication professional skills execution course not regularly offered. ? Topics and prerequisites specified in Class Schedule. ?Students must be Strategic Communication majors and meet the prerequisites for the specific course offering.

JOUR 3796. Media and Politics. (3 cr. ; Student Option; Every Fall)
Do facts matter anymore? Is press freedom under threat? Are audiences trapped in filter bubbles? Why do people hate the media, and how can the news be improved to better serve citizens? Explore the historical and contemporary dynamics that shape the relationship between professionals in the media, the mass public, and political actors across different parts of government. Study major forms of mass media, including television and newspapers, alongside new forms such as digital and social media. Look at specific reporting rituals and practices, as well as issues involving media ownership, regulation, ethics, and press freedom. We will study politicians? efforts to craft messages, advertise strategically, and target select audiences for political gain. The course will focus primarily, but not exclusively, on the United States, and

you will be asked to engage with current events and the role of communication technologies in political and civic life.

JOUR 3890. Special Topics in Strategic Communication Skills - Planning. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Strategic Communication professional skills planning course not regularly offered. ? Topics and prerequisites specified in Class Schedule. ?Students must be Strategic Communication majors and meet the prerequisites for the specific course offering.

JOUR 3896. Directed Internship. (; 1 cr. [max 3 cr.] ; S-N only; Every Fall & Spring)
This is an independent study internship practicum. Students obtain an internship with the organization of their choice, such as a TV station, advertising agency, magazine, corporation or non-profit organization, to gain real-world professional experience. The internship should be in students? field of concentration and improve their professional skills; the internship should be guided by a person already working in their chosen field. The course will assist students to examine, reflect on and construct meaning from their internship experience and will encourage them to examine what it means to be a professional and to operate within professional environments. A student may only earn credit for a given internship through one course at a time. prereq: Jour major, dept consent

JOUR 3993. Directed Study. (1-3 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Directed study, projects. Prereq [Jour major or jour minor or approved IDIM major or ICP major or BIS major], instr consent, dept consent, college consent.

JOUR 4171. Covering the Arts. (3 cr. ; A-F only; Every Fall)
As arts journalism continues to migrate from print to online media, the distinctions between entertainment and art have begun to merge, and the boundaries between professional journalism and promotion have blurred. Yet the task of the arts journalist remains an important independent voice for developing arts literacy on print and digital platforms. This course will not only develop practical and critical thinking needed to write about the arts as a journalist but will also do so via digital approaches to arts coverage. Accordingly, students will be immersed and engaged on a variety of platforms to produce relevant journalism about a wide variety of arts for 21st century readers. prereq: [Jour 3004 or 3004H], Jour 3101, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4172. Sports Reporting. (3 cr. ; A-F only; Every Spring)
This course will cover game-story writing, multimedia/digital storytelling, interview/press conference techniques, sports-business reportage, data-driven journalism, effective use of social media and opinion/column writing. Top sports media professionals and other local sports personalities will come in periodically to tell their stories and teach students some of what they know about good sports journalism. The aim of this course is to provide first steps toward working in today?s sports media environment. Some possible sports career destinations include becoming: an authoritative sports blogger; TV sports anchor, reporter or sideline analyst; beat reporter or sports editor for a newspaper (and its website); team sports information director; writer of long, beautiful prose for a national magazine or website. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3121 or instructor permission, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4173. Podcast Production and Storytelling. (3 cr. ; A-F only; Every Fall)
Nieman Journalism lab declared Podcasting the last mass medium, WNYC invested $15 million in development on podcasts last year alone with the New York Times, the LA Times and now the Washington Post not far behind. Whether it?s for news and information, strategic communication messaging or pure entertainment, podcasting has changed how the world seeks and delivers information. This class will take the mystery out of audio: what makes it different, where its challenges lie and what makes it such an enticing medium to work in. Students will learn the basics of narrative audio storytelling, which is used extensively in some of the most influential podcasts including Serial, This American Life, Caliphate, Dirty John to podcasts like Target?s Coffee and Crayons (produced in partnership with Slate Studios) and the Trader Joe?s podcast Inside Trader Joe?s. Audio has the power to involve the listeners, to make them a part of the story ? whether it?s buying crayons or explaining an Islamic insurgency ? the tools are the same: real voices, sound and conversational writing. Students will learn how to harness sound, to use it to develop a narrative and tell stories with scope, sound and texture.

JOUR 4175. Brovald-Sim Community Journalism Practicum. (; 3 cr. ; A-F only; Every Spring)
Community journalism is arguably the most relevant source of news and information for our citizenry, whether in urban, suburban or rural settings. That?s still true today, but the nature of what we call community journalism is changing. For decades, community journalism has been defined by its geographical boundaries, concerning chiefly the institutions ? schools, churches, businesses or government ? within those borders. While that traditional community journalism is certainly still alive today, the reach of digital journalism and social media has transformed the notion of community. New communities can define themselves beyond geography, a shift that creates opportunities for journalists to cover a broader sense of ?where? people live. This course will explore this shift through practical, hands-on experience and thoughtful consideration of the journalist?s role in covering diverse communities. Through readings, lectures and discussions with professionals who do the work, students will consider the notion of community journalism and the best practices for it. Students will target a community in and around the University of Minnesota and develop cover that community on the student-run website AccessU. The goal is for those teams to publish relevant stories about the community on that site in text, photos, video and visualizations. prereq: [Jour 3004 or 3004H], Jour 3101, [Jour 3103 or Jour 3121 or Jour 3155 or Jour 3173 or Jour 4302], [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4242. Advertising Portfolio Development. (3 cr. ; A-F only; Every Fall & Spring)
This course improves students' creative development and conceptual thinking. Students will develop creative ideas based on sound strategies, with emphasis on developing ideas for current and evolving creative media opportunities. At the end of the term, students will be able to apply strategic and insightful creativity to advertising ideas and will have a basic understanding of how to put a book together for the field of advertising. prereq: [Jour 3004W or 3004V], Jour 3201, Jour 3241, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4243. Digital Content Development and Production for Brand Communications. (3 cr. ; A-F only; Every Fall & Spring)
This course focuses on the conceptual and practical skills necessary for strategic communication practitioners, especially those focused on careers in public relations, corporate communications and sponsored content generation, to create, produce, publish and distribute content for brands. The course addresses new technologies for branded storytelling including various forms of online video, longer form digital content such as blogs and web sites, and social media community content created for social platforms. The course also incorporates elements of user experience and graphic design and the skills necessary to adapt and modify content in an iterative process after analyzing audience data. Discussion of professional ethics in the creation of branded content is incorporated throughout. prereq: [Jour 3004W or 3004V], Jour 3201, [Jour 3241 or Jour 3279], [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4251. Psychology of Advertising. (3 cr. ; Student Option; Every Fall & Spring)
Ever wonder what your brain does when you see an advertisement? Ever wonder why advertisements work? And why sometimes they don't? How does advertising compel you to buy things you don't need and what strategies do you use to resist these messages? In this course we explore a range of theories that explain how advertisements influence memory, attitudes, emotions, and behaviors and how humans actively process and resist persuasive messages.

JOUR 4259. Strategic Communication Case Analysis. (3 cr. ; A-F only; Every Fall & Spring)
This course explores a wide range of strategic communications campaigns in a case study setting. Students will explore real-life situations and analyze them from a strategic, integrated

communications point of view. The cases will focus on building relationships with key stakeholder groups, using strategic communication in today?s global environment, and critically analyzing ethical and legal issues. The course objective is to provide students with opportunities to apply their analytical skills when identifying communication opportunities and problems, evaluating the cost and benefits of alternative communication strategies, and evaluating the outcomes of communication campaign decisions. Students will learn how quantitative and qualitative evidence can be used to support strategic decisions, recommendations and campaign evaluation. Campaigns are drawn from the business, nonprofit, government and political sectors and they focus on communication issues addressed through strategic communication, including public relations, advertising, marketing and/or social media. Students also examine cases involving crisis communication, media relations and multicultural communication. The case study approach will prepare students to develop their decision-making skills based on best practices learned through the critical evaluation of past and present campaigns. prereq: [Jour 3004W or 3004V], Jour 3201, any 32xx skills course, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4262. Management for Strategic Communication. (3 cr. ; A-F only; Every Fall & Spring)
This course teaches the concepts and methods for effective management by placing them in the context of organizations in the field of strategic communication. These organizations are diverse in their scale of operations and in the products and services they produce. They are highly responsive to the latest developments in digital media technology, conditions in the local and global economy and trends in society. They include advertising agencies, public relations firms, media organizations, digital media agencies, brand content developers and communication departments in client organizations, both for profit and nonprofit businesses. The topics taught in this course include strategic business planning, budgeting, understanding fundamental financial concepts, leadership skills, human resource management, project management and marketing and selling skills. The concepts, skills and perspectives covered in this course apply to both working within organizations and to understanding the business circumstances of clients and competitors. The course also serves to awaken students to the potential, when opportunities arise, to propose and develop new business ideas of their own. prereq: [Jour 3004W or 3004V], Jour 3201, any 32xx skills course, [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4263. Strategic Communication Campaigns. (3 cr. ; A-F or Audit; Every Fall & Spring)
This course provides an in-depth look at all aspects of strategic communications culminating in the development of a strategically sound communications campaign. Emphasis is on ?real-life? examples of campaigns, their creation and development. All essentials of developing a strategic campaign are covered, including advertising strategy, positioning, developing creative, consumer research, planning and setting objectives, media strategies, budgeting, public relations programs and promotion. This course is designed to bring together all aspects of communications planning that students have gained from previous classes. The class will focus on the integration of various techniques and elements available to most effectively create a strategic communications campaign. This course will simulate the teamwork involved in working in a strategic communications agency. Case studies will be used extensively to apply the theory to the practice in a meaningful, memorable way. prereq: [Jour 3004W or 3004V], Jour 3201, any 32xx skills course, [any 4/5xxx skills course or Flor 3007 or concurrent registration], [Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4272. Digital Advertising: Theory and Practice. (3 cr. ; A-F or Audit; Every Spring)
This course introduces you to the fascinating and ever-changing world of digital advertising and marketing. Learn its history and evolution, current trends, future possibilities and legal/ethical issues. We'll study the innovative research and theories explaining the practice and effects of various forms, including social media, search marketing, gaming, native, viral, online video advertising, online behavioral advertising, and mobile. Through a combination of lectures, in-class discussions, and guest presentations by industry professionals, you'll learn the basic theories for developing effective and socially-responsible digital advertising campaigns in the increasingly diverse and global media environment. prereq: Jour major, Strat Comm major, Mass Comm major or Mass Comm minor or Digital Media Studies minor approved BIS/IDIM/ICP program

JOUR 4274W. Advertising in Society. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Advertising in Society asks students to think about the ways that advertising intersects with cultural and political life in the 21st century, examining the influence of advertising from many perspectives?legal, constitutional, social and ethical. This course tackles a variety of current topics in advertising, including the many other powerful social institutions that advertising underpins (such as journalism and entertainment content), the role of American political advertising, the way advertising depicts gender and sexuality, the obligations of advertisers toward vulnerable audiences, and the ethics and impact of increasingly pervasive personalized hyper-niche ads on Twitter, Facebook and Instagram. This course helps students learn how to conduct thorough analyses of issues, develop positions on issues, and present coherent and convincing arguments for the positions they have taken.

JOUR 4302. Photojournalism. (3 cr. ; A-F or Audit; Every Fall)
Students in this course can expect to learn skills in understanding convergence journalism and visual roles and responsibilities in newsrooms, understanding basic video news production using a DSLR, and using those to create a portfolio of still images with significant journalistic content. Students will study some concept and theory, plus approaches in covering story events and using a variety of technologies to gather, edit and disseminate stories. Students will look at ways to tailor stories for print, broadcast, web and mobile reporting, and talk about the differences in audience and will study ethics all along the way, too. Students will get photo-nerdy. They will learn production skills that include visual grammar and application, how to use a DSLR camera for both still and video images, and how to use light and color to tell news and feature stories. Plus, students will learn to edit photos and video for great images and for great stories. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3102, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4303. Advanced Visual Storytelling. (3 cr. ; A-F only; Every Spring)
Students produce in-depth multimedia stories, using photography, audio, video, text and infographics, working both individually and in groups. Students will produce and participate in a completed multimedia project (with at least three story forms) by the end of the semester. Students examine the implications of differing approaches to multimedia production and consider ethical issues raised by it. Exemplary work of multimedia journalism is regularly presented and reviewed. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3102, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4451. Long-form Video Reporting. (3 cr. ; A-F only; Every Fall)
Emphasis in this course is on longer-form storytelling using video, audio, graphics and still photography, edited into multimedia presentations for journalistic and persuasive messages. Story conceptualization, enterprise, source development, access, narrative approaches and related issues will be addressed. Ethical and legal implications of multimedia storytelling in journalistic and strategic communications settings will be reviewed. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3102, Jour 3451 [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4452. Newscast Producing. (3 cr. ; A-F only; Every Spring)
The emphasis of the course is planning, writing, producing and presenting live TV newscasts. Students will produce University Report newscasts during the semester. Much of the class will also be spent writing broadcast news copy. Students will also generate their own stories as needed and anchor newscasts or segments. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3102, Jour 3451, [Jour 3121 or concurrent registration], [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 4590. Special Topics in Mass Communication: Context. (; 3 cr. [max 6 cr.] ; A-F or Audit; Periodic Fall & Spring)
Special context topics not regularly offered. Topics specified in Class Schedule.

JOUR 4690. Special Topics in Journalism Skills. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Journalism professional skills course not regularly offered. ?Topics and prerequisites specified in Class Schedule. ?Students must be Journalism majors and meet the prerequisites for the specific course offering.

JOUR 4721. Mass Media and U.S. Society. (DSJ,SOCS; 3 cr. ; Student Option; Every Spring)
Are the news media doing a good job? How can you tell? Does it matter? Is The Daily Show the best news program on television? Why or why not? Most people seem to have an opinion about all of these questions. Most discussions seem to center on one of four themes: 1) who owns the media and what they care about; 2) whether the news media are becoming more or less credible and/or biased; 3) whether entertainment is replacing or enhancing information in news programming; and 4) how much, if at all, is the Internet changing everything about the way the media work, including who we think of as a journalist. Mass Media and U.S. Society explores the validity and importance of these themes in terms of what roles can the media play in society, what roles does it play, and how have those roles have changed over time. The course draws on ideas from various social sciences to develop tools for discussing a number of specific issues related to these themes.

JOUR 4721H. Mass Media and U.S. Society. (DSJ,SOCS; 3 cr. ; A-F only; Every Spring)
Are the news media doing a good job? How can you tell? Does it matter? Is The Daily Show the best news program on television? Why or why not? Most people seem to have an opinion about all of these questions. Most discussions seem to center on one of four themes: 1) who owns the media and what they care about; 2) whether the news media are becoming more or less credible and/or biased; 3) whether entertainment is replacing or enhancing information in news programming; and 4) how much, if at all, is the Internet changing everything about the way the media work, including who we think of as a journalist. Mass Media and U.S. Society explores the validity and importance of these themes in terms of what roles can the media play in society, what roles does it play, and how have those roles have changed over time. The course draws on ideas from various social sciences to develop tools for discussing a number of specific issues related to these themes. prereq: honors

JOUR 4733V. Honors Thesis Seminar. (WI; 3 cr. ; A-F only; Every Fall)
Students work under supervision of instructor, with input from subject or methodological advisers, to define research question, conduct research, and write thesis. Students serve as consultants to one another. prereq: Jour major, [jr or sr], honors

JOUR 4790. Special Topics in Strategic Communication Skills - Execution. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Strategic Communication professional skills execution course not regularly offered. ? Topics and prerequisites specified in Class Schedule. ?Students must be Strategic Communication majors and meet the prerequisites for the specific course offering.

JOUR 4801. Global Communication. (3 cr. ; Student Option; Every Spring)
How does communication affect international affairs? That's literally a question of war and peace, and this class guides you through the big theories and the real life stories of how news, information and entertainment travels around the world. Analyze the role of communication in globalization, addressing possible interpretations ranging from cultural imperialism to democratic development. Examine how different media cover foreign countries. What does it take to cover the world, historically and at a time of unprecedented challenges for professional journalism? What are the practices that have made international news what it is for the last century? Through theory and case studies from journalists and diplomats, examine the possible effects of international communication on international relations and policy making.

JOUR 4890. Special Topics in Strategic Communication Skills - Planning. (; 3 cr. [max 6 cr.] ; A-F only; Periodic Fall & Spring)
Strategic Communication professional skills planning course not regularly offered. ? Topics and prerequisites specified in Class Schedule. ?Students must be Strategic Communication majors and meet the prerequisites for the specific course offering.

JOUR 4995. Capstone. (; 1 cr. ; S-N only; Every Fall & Spring)
The purpose of this course is to round out professional career competencies for Hubbard School of Journalism and Mass Communication majors. It is designed to complement and provide capstone reflection on a student's development through HSJMC's curriculum in the professional journalism, strategic communication and mass communication programs. This course has four parts: career competency reflections of previously taken JOUR courses using CLA's RATE tool; a networking unit; a written reflection of the students' HSJMC experiences projecting to career readiness; and an assessment of context course learning outcomes. Students enroll in this course along with an advanced skills or context course during their last semester.

JOUR 5001. Introduction to Mass Communication Theory and Research. (3 cr. ; A-F only; Every Fall)
Course is designed to provide an overview of the evolution and content of the major intellectual perspectives, theories, and methodological approaches that serve as the basis for the mass communication discipline. Provides the intellectual base for first-year master's students' graduate work in mass communication, as well introduces advanced undergraduate students to graduate study in the discipline. prereq: Grad students enrolled in Mass Communication MA or PhD program

JOUR 5131. In-Depth Reporting. (3 cr. ; A-F only; Every Fall)
The approach to the class is dual: First, there is an academic component ? studying the best examples in-depth reporting from muckrakers to yesterday?s New York Times. This part of the course will be presented in a seminar style with a high-expectation for student involvement. Second, there is a hands-on component ? giving students the opportunity to exercise what they learn in this class and elsewhere in their journalism program. This part of the course will require students to identify appropriate stories for in-depth reporting, outline the proposed stories to the instructor, thoroughly report the stories and go through the editing process. Students will also produce graphics and photographs, and might consider various multi-media possibilities. The class topics will be organized around essential social issues, such as health care, politics, poverty, business or other topics. During some semesters, students will produce news stories for publication at a professional news organization, such as MinnPost.com. Such opportunities in past classes have allowed students to work with professional reporters and editors and get bylines stories read by thousands. prereq: [Jour 3004 or 3004H], Jour 3101, Jour 3121, [Jour major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 5174. Magazine Editing and Production. (3 cr. ; A-F only; Every Spring)
This course focuses on magazine and web writing, editing, photography, graphic design, and production. Students will study concepts of magazine and web communication with a special concern for how words, pictures, multimedia and design can be combined effectively. Over the semester, the class will create and produce a professional quality single-theme magazine and website. During this process, students will experience firsthand the organization and working of an editorial and production staff, and the implications of specific divisions of labor and working relationships. All students will write an article and/or produce web content as well as hold a staff job. prereq: [Jour 3004 or 3004H], [Jour 3101 or Jour 3279], [Jour 3155 or Jour 3173 or Jour 3321 or Jour 4171 or Jour 4302], [Jour major, Strat Comm major, Mass Comm major or approved BIS/IDIM/ICP program]

JOUR 5196. Field Based Practicum. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
This class will teach advanced reporting skills through hands-on experience, professional oversight and thoughtful discussions with working journalists. Classes will be held at news organizations, where students will also work directly with editors to produce news, features or other content. That work experience will be complemented in weekly sessions by readings, projects and discussions and with journalists. Students apply to this course and completion of Jour 3121 is encouraged. Applications are available in the HSJMC

student services office about a month before registration begins. prereq: Jour major and instructor permission

JOUR 5251. Strategic Communication Theory. (3 cr. ; Student Option; Every Spring)
This course is an introduction to psychologically-grounded concepts, theories and research and their applications for strategic communication. The course objectives involve comprehension and application of a range of psychological concepts and theories related to attitude development, susceptibility to message influence, and opinion formation and change. The course will provide opportunities to apply theoretical concepts to critically evaluate strategic communications (advertising, public relations, brand marketing, etc.) and to use psychological theory and research to inform the development of communication strategies. The course will examine how these theories help us understand communication processes in digital media environments, as well as how they inform relationship-building areas of strategic communication such as reputation and crisis management. The course will provide opportunities for students to apply concepts and theories to potential research for graduate degree capstone projects.

JOUR 5253. Content Strategy and Development. (3 cr. ; Student Option; Every Fall)
In today?s disruptive world of digital and social communications, brands/organizations have found it necessary to become content publishers. This course will expose students to evolving, highly dynamic best practices in content strategy and brand journalism. The course will consider how editorial strategies, emerging technologies and digital delivery platforms can lead to more effective content creation, distribution, audience engagement and measurement. Students will learn the various stages of content development, from organizing the brand?s storyline and mapping it to the customer?s brand journey, to the processes of planning, implementing and auditing an organization?s content strategy. The course includes weekly readings and case studies for each topic; guest lecturers who are experts in their area of content strategy; as well as a semester-long class project that aligns with each stage of the content development process. prereq: Strategic Communication MA student or instructor permission

JOUR 5501. Communication, Public Opinion, and Social Media. (3 cr. ; Student Option; Every Fall)
Sharpen your understanding of public opinion and its role in political and civic life: What does it mean? Where does it come from? How is it measured? What impact does it have? How are the public?s preferences shaped by the larger communications environment and the strategic messages of politicians, interest groups, and other actors in society? What are polls really measuring, and why do they seem so unreliable sometimes? How are social media technologies giving voice to new segments and dimensions of public opinion? But how are they vulnerable to manipulation from bots and other efforts designed to alter perceptions of collective opinions? Examine the theories of communication, psychology, political science, and sociology that underlie these dynamic questions. We?ll consider cutting edge approaches used by market researchers, political analysts, and data scientists to harness new forms of data about what the public thinks. We investigate theories that explain how people form their opinions, deliberate with others, change their minds, and reveal their preferences, and we apply these frameworks to understand contemporary public opinion issues and campaigns.

JOUR 5541. Mass Communication and Public Health. (3 cr. ; Student Option; Every Fall)
This course provides an overview of theory and research that lies at the intersection of mass communication and public health. We examine the potential for media exposure to influence public health outcomes, both as a product of people's everyday interactions with media and the strategic use of media messages to accomplish public health goals. To this end, we will explore large-scale public health campaigns in the context of tobacco, obesity, and cancer screening. We also will explore news media coverage of controversial health issues, such as the human papillomavirus (HPV) vaccine, and health information in entertainment media, such as smoking in movies. This course seeks to understand whether media messages have had intended and/or unintended effects on public attitudes and behavior. Although our focus is on mass media, interpersonal, medical, and digital media sources will be considered as well.

JOUR 5542. Theory-based Health Message Design. (3 cr. ; Student Option; Every Spring)
This course is designed to provide an overview of theory and research relevant for the design of health messages, and specifically focuses on how such theory and research informs message design. It builds on social and behavioral science approaches to public health communication and media effects with the primary objective to better understand issues and strategies related to the design of media health messages. Prerequisites: Jour 3005 or Jour 3757 or Jour 5541

JOUR 5543. Public Health Campaign Evaluation. (; 3 cr. ; A-F or Audit; Every Fall)
Evaluate process and outcomes of message-based health interventions. Utilize campaign evaluation literature. Develop recommendations for evaluation research design based on cross-sectional, experimental, and time-based designs. Focus on evaluation options within constraints.

JOUR 5552. Law of Internet Communication. (3 cr. ; A-F or Audit; Every Spring)
Digital communication technologies continue to raise a variety of legal issues, including whether and how (and which) traditional media and regulatory laws will apply, and how policy should be applied through regulatory law to enhance and regulate that communication. This course is conducted as a seminar, with an open discussion of legal precedent and the influence of policy on internet and digital communications. This course covers the First Amendment as it applies in a digital era as well as regulatory topics like net neutrality, broadband access, privacy, and copyright.

JOUR 5601W. History of Journalism. (WI; 3 cr. ; Student Option; Every Spring)
What is (real/fake) news? Who's a journalist? What is journalism? How did we get to where we are today regarding journalism both as a profession and as an essential tool of democracy? Learn the fundamental chronology of the development of journalism in the United States from the Revolution to today, and then delve into the big quandaries: How free has journalism been? What have been its professional standards? How has journalism affected a diverse audience? What are the challenges of international journalism? And how have new communication technologies interacted with journalism?

JOUR 5606W. Literary Aspects of Journalism. (WI; 3 cr. ; Student Option; Every Spring)
Journalism isn't fiction. Yet the relationship between what is true and what is artfully constructed toward a "larger truth" -- beyond the facts -- has a complex and intriguing history. This writing-intensive course explores that relationship through close readings of some the best writers of long-form nonfiction, starting with the birth of the novel from journalistic roots in the 18th century and ending with postmodern forms that challenge the notion of what we can ever know. Discover the literary devices used by Stephen Crane's reported street scenes or Nellie Bly's first-hand investigations into conditions for the mentally ill in the 19th century, and, later, Truman Capote's nonfiction novel about a Kansas farm family's murder. Readings include works by pivotal 20th-century writers such as John Hersey, Joseph Mitchell, Lillian Ross, Michael Herr, Norman Mailer, Gay Talese, Joan Didion, Tom Wolfe, and Hunter S. Thompson, and will trace how their pioneering methods influenced contemporary journalism as well as the documentary films of Errol Morris and contemporary nonfiction writers expanding into new forms.

JOUR 5725. Management of Media Organizations. (3 cr. ; Student Option; Every Fall)
Introduction to concepts/principles of media management. Strategic planning, leadership, organizational strategies, ethical/legal issues. Working in teams. Balance sheets, income statements. Motivating/promoting people.

JOUR 5777. Contemporary Problems in Freedom of Speech and Press. (3 cr. ; A-F only; Every Fall)
Most of us use devices like Smartphones, GPS, streaming services, or hands-free speakers like Amazon's Echo that connect to online voice services like Alexa without thinking about them very much. But, what kind of information are they collecting? Are merchants allowed to gather your shopping history and use it to send you targeted advertising, or to sell it to other companies for profit? Should

other people be able to post your personal information or photos online without your consent? Can the government read your emails, track your online browsing, or intercept your text messages? This course considers how growing concerns about privacy and national security affect the First Amendment and the rights of journalists to gather and report the news. We will read significant court decisions and take a look at current statutory and regulatory initiatives both in the United States and abroad. You can expect lively debates and discussion, and the opportunity to explore a privacy or national security issue in depth in a substantial research paper. prereq: Jour major, Strat Comm major, Mass Comm major or Mass Comm minor or approved BIS/IDIM/ICP program or graduate or law student status. Course is open to students have previously taken a relevant law course - contact instructor for permission.

JOUR 5993. Directed Study. (1-3 cr. [max 6 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Directed study/projects. Prereq [Jour major or jour minor or approved IDIM major or ICP major or BIS major], GPA of at least 3.00, college consent, dept consent, instr consent.

Kenya (KNYA)

KNYA 1221. Beginning Swahili I. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

KNYA 1222. Beginning Swahili II. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

KNYA 3001. Engineering in the Developing World. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

KNYA 3002. Intercultural Perspectives on Work. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

KNYA 3225. Intermediate Swahili I. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

KNYA 3226. Intermediate Swahili II. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

KNYA 3231. Advanced Swahili. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

Kinesiology (KIN)

KIN 1871. Survey of Kinesiology, Recreation, and Sport. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Professional practice and disciplinary dimensions of kinesiology, recreation, and sport. Subdisciplines, relevant issues, practical applications.

KIN 3001. Lifetime Health and Wellness. (SOCS; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Overview of health/wellness. Physical, emotional, intellectual, spiritual, social, environmental, and financial health. Influence of societal changes on general health/wellness of diverse populations.

KIN 3027. Human Anatomy for Kinesiology Students. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Kinesiology 3027 is a 4 credit introduction to human anatomy with two 50-min lectures and one 100-min lab per week. The lecture series is organized around an organ systems approach and currently follows the text of Marieb et al., 8th. Edition. The lectures are divided into 3 major sections: musculoskeletal, cardiopulmonary and renal, and neuro-endocrine and digestive. Within each major section, anatomic description proceeds from the microscopic, or cellular level, to the key features of tissues that aggregate into organ anatomy (bottom up). The kinetic anatomy perspective describes the dynamic and functional features of organ systems based on their component organ anatomy and interactions (top-down). The context for course material covered will reflect a kinesiology focus on human movement in exercise and sports. This will better prepare students for graduate school courses in the health sciences, movement sciences, and Athletic Training. Students will be encouraged to learn their own anatomy as a health and preventive medicine skill. The laboratory component is primarily based in the Human Performance Teaching Laboratory (HPTL) in Mariucci Arena 141. Laboratory activities include: 1. Working with individual bones, intact skeletons, and models of limbs and organs 2. Following interactive virtual dissection using Pearson?s Mastering A&P software 3. Using Primal Picture software animations, and skeletal movement video clips to analyze and describe muscle actions in common sports movements and injuries. The Kinetic Anatomy (KA) lab involves direct examination and identification of bones, identification of key muscle origins and insertions, and the evaluation of skeletal movement. As a small group (KA) project, students will evaluate a couple physical movements (chosen by the students themselves from a selection of video clips), and give an oral presentation on their assessment of the kinetic anatomy (core movements, primary muscles involved, muscle origin and insertion, as well as agonist/antagonist muscles). A written report from this project will also be required to demonstrate the accurate use of terminology and effective communication of ideas. Old:

KIN 3112. Introduction to Biomechanics. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Mechanical principles governing human motion. Human bone, muscle, and neurophysiology. Measurements of human performance. Clinical/applied sport biomechanics. Lab introduces technology for assessing human motor function such as electromyography or force sensors. prereq: [PHYS 1101W or PHYS 1201W or PHYS 1301W or PHYS 1401V or 1107], [3027 or 3111 or ANAT 3001 or ANAT 3601 or ANAT 3611 or INMD 3001 or INMD 3601]; 3385 recommended

KIN 3114. Prevention and Care of Athletic Injuries. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Principles in athletic training for prevention/care of injury. Taping/bracing techniques. Lab. prereq: [3027 or ANAT 3001 or ANAT 3601 or ANAT 3611 or equiv], [CEHD student or instr consent]

KIN 3126W. Sport and Exercise Psychology. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Thoughts, feelings, and behaviors of people in physical activity contexts. Foundations approach to theory/research in sport and exercise psychology. prereq: Kin major or instr consent

KIN 3131W. History and Philosophy of Sport. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introductory description and interpretation of the historical and philosophical development of physical education and sport from primitive societies to 20th century civilization. prereq: Kin major or instr consent

KIN 3132. Introduction to Motor Development Across the Lifespan. (; 3 cr. ; A-F only; Every Spring & Summer)
Developmental aspects of human movement behavior/learning. Life span change of motor skills. prereq: Kin major or instr consent

KIN 3135. Introduction to Motor Learning and Control. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Main theoretical ideas/research that have advanced motor control/learning over last three decades.

KIN 3136. Mental Skills Training for Sport. (; 3 cr. ; A-F only; Every Fall & Spring)
Experientially-based course. Using mental skills training strategies (e.g., imagery, goal setting, relaxation, cognitive restructuring, motivation) for enhancing sport performance and personal growth of athletes.

KIN 3327. Teaching Physical Education in the Elementary School. (; 2 cr. ; A-F only; Every Fall & Spring)
KIN 3327 addresses inquiry, research, and reflection through class projects, reading assignments, discussions, and team-teaching. Inquiry is addressed as classroom teachers review several sources in order to formulate a philosophy about physical education and its importance in the lives of the students they teach. Research takes place as students delve into current curriculum practices, methodology and strategies as well as knowledge of age level characteristics and developmentally appropriate activities. Reflection is twofold as student?s team-teach a variety of lessons. Students must present post reflective comments on their own teaching as well as offering positive comment as peers present physical education lessons. This course is activity based and is designed to give the classroom teacher the ability to teach elementary physical education with age appropriate, energizing activities. We will be utilizing the classroom and the gymnasium for instruction and team-

teaching. Gymnasium classes will be active, experiencing current curriculum ideas and methodology. As classroom teachers, please realize the importance of physical education to the total school curriculum including the health, social, and emotional benefits for the child.

KIN 3385. Human Physiology. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Functional/integrative approach organized by level of description, from molecular genetics to dynamic movement/clinical conditions. Cellular mechanisms for major physiological functions. Exercise, fitness, health, growth. prereq: [[KIN 3027 or ANAT 3001 or ANAT 3601 or ANAT 3611], KIN major] or instr consent

KIN 3505. Intro to Human-Centered Design. (; 3 cr. ; Student Option; Every Fall)
Application of design to meet human needs. Design of fabricated products, tools/machines, software/hardware interfaces, art/culture, living environments, and complex sociotechnical systems.

KIN 3696. Supervised Practical Experience. (; 1-10 cr. ; S-N only; Every Fall, Spring & Summer)
On-the-job supervised practical experience in the fields of sport and exercise under a specialist in a particular area of study or emphasis. prereq: instr consent

KIN 3720. International Studies in Kinesiology. (; 2-4 cr. [max 12 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics from research exploration, to academic and engagement activities. Delivered in an international setting. Course requirements are determined by instructor(s) and reflect advanced undergraduate rigor. prereq: instr consent

KIN 3982. Research Methods in Kinesiology. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
How to understand/interpret/read research. Research question, study design, quantitative/ qualitative methods. Instrumentation, statistical methods, study limitations/implications. Critiquing peer-reviewed articles. Designing a research study. prereq: Kin major or instr consent

KIN 3993. Directed Study in Kinesiology. (; 1-10 cr. ; A-F only; Every Fall, Spring & Summer)
Students work with faculty and graduate students on research or scholarly/creative activities. Students usually assist with faculty scholarship or carry out projects of their own under faculty supervision. prereq: instr consent

KIN 3993H. Directed Study in Kinesiology: Honors. (; 1-10 cr. ; A-F only; Every Fall, Spring & Summer)
Student-selected clinical or research experience. prereq: Kin honors, instr consent

KIN 4001H. Honors Seminar in Kinesiology. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Contemporary issues in kinesiological research. Laboratory rotations, development of UROP project proposal, development of senior thesis topic, advanced study, career opportunities in Kinesiology, special learning opportunities. prereq: Kinesiology honors

KIN 4133. Perceptual-Motor Control and Learning. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Concepts/principles of coordination/control of perceptually guided movement. Constraints imposed by properties of environment, body (including the nervous system), and goals of behavior. Why we move the way that we do. prereq: [3112, 3132, 3135, KIN major] or instr consent

KIN 4134. The Aging Motor System. (3 cr. ; A-F only; Every Fall & Spring)
Impact of aging on the motor system and its influence on activities of daily living (ADL); posture, falls, participation in physical activity, performance operating personal transportation systems. Effects of aging (behavioral and biological) on coordination/control and its related perceptual-cognitive correlates. prereq: [3132, 3135, Kin major] or instr consent

KIN 4136. Embodied Cognition. (3 cr. ; A-F only; Every Fall & Spring)
Introduction to relations between physical behavior/mental activity. Cognitive, emotional, social aspects. Concepts of embodied cognition, their relation to traditional concepts of mind/body. Lifespan development, empirical research. prereq: 3132 or 3135 or instr consent

KIN 4214. Health Promotion. (3 cr. ; A-F only; Every Fall & Spring)
Behavioral and environmental theories of health promotion. How to develop and evaluate programs. Smoking cessation, asthma management programs. Students develop a health promotion program for their class project.

KIN 4385. Exercise Physiology. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Effects of exercise on physiological systems of human body. Energy/nutritional requirements of exercise, exercise prescription, athletic conditioning, ergogenic aids, exercise in environmental extremes, gender/heritability factors related to adaptation to training. prereq: [[3385 or PHSL 3051, or equiv], kin major] or instr consent

KIN 4441. Movement Neuroscience. (3 cr. [max 6 cr.] ; A-F only; Periodic Fall)
Neural basis of human motor function. Neuroanatomy and neurophysiology of motor control and learning. Seminar for students in kinesiology, neuroscience, physical therapy, physiology, psychology, bioengineering, and human movement science. prereq: 3135 or instr consent

KIN 4520. Current Topics in Kinesiology. (; 2-4 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Issues in kinesiology or in areas not normally available through regular curriculum offerings. prereq: Upper div in KIN or REC or SMGT or coaching or instr consent

KIN 4641. Training Theory & Analytics I for Sport Performance. (3 cr. ; A-F only; Every Fall & Spring)
Course prepares students to systematically design training & conditioning programs for performance, specific to conditioning within aerobic and anaerobic demands. This course utilizes mathematical models with physiological adaptations to maximize performance in sport, dance, public safety and military elites. prereq: [KIN 4385 or exercise physiology course], [upper level undergrad or M.Ed. or grad student]

KIN 4687. Principles and Theory of Sports Coaching. (3 cr. ; A-F only; Every Fall, Spring & Summer)
This course introduces students to theoretical and applied aspects of sports coaching. Through active participation students will learn how to create a positive sporting environment by utilizing athlete-centered coaching strategies. Students will also learn how to evaluate and improve their own coaching performance by applying reflective and evaluative skills. Topics covered include coaching, training and management principles, coaching pedagogy, coaching science, planning, skill learning and sports psychology. At the completion of this course student will be more confident and knowledgeable in their coaching practice and have a foundation of a personal coaching philosophy. In summary, the approach in this course is toward teaching the student the theory, principles, concepts, and practices that can be applied in the dynamic, ever changing, challenging, and rewarding field of coaching.

KIN 4697. Student Coaching and Seminar. (; 3 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Student coaching practicum under supervision of mentor. Seminar classes. Development of integrative project. prereq: [Coaching minor or certificate] student, GPA of at least 2.50

KIN 4741. Training Theory & Analytics 2 for Sport Performance. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Course prepares students to systematically design training & conditioning programs for performance, specific to speed, power, reaction & agility. This course utilizes periodization models with expected physiological & neuromuscular adaptations to maximize human performance in sport, dance, public safety and military elites. prereq: KIN 4641, [upper level undergrad or M.Ed. or grad student]

KIN 5001. Foundations of Human Factors/ Ergonomics. (; 3 cr. ; A-F or Audit; Every Fall)
Variability in human performance as influenced by interaction with designs of machines and tools, computers and software, complex technological systems, jobs and working conditions, organizations, and sociotechnical institutions. Emphasizes conceptual, empirical, practical aspects of human factors/ergonomic science.

KIN 5104. Physical Activities for Persons with Disabilities. (3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Different approaches to providing physical education service and related movement interventions for persons with disabilities. Topics: movement behavior foundations, movement skill progressions, unique

considerations for specific impairments, and sport for persons with disabilities

KIN 5111. Sports Facilities. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Steps in planning/building facilities for athletics, physical education, and sport for college, professional, and public use. prereq: Kin or Rec grad student or MEd student

KIN 5115. Event Management in Sport. (; 3 cr. ; A-F or Audit; Every Spring & Summer)
Techniques/principles of planning, funding, and managing sport events. Collegiate championships, non-profit events, benefits, professional events. prereq: Grad student, instr consent

KIN 5122. Applied Exercise Physiology. (; 3 cr. ; A-F or Audit; Periodic Fall)
Mechanisms of cardiorespiratory and muscular responses to exercise; application of exercise physiology to assessment of work capacity, athletic conditioning, and requirements of human powered vehicles; low to moderate exercise as an intervention in lowering risk for common health problems. prereq: 4385 or equiv or instr consent

KIN 5123. Motivational Interventions in Physical Activity. (; 3 cr. ; A-F only; Every Fall & Spring)
Psychological principles related to physical activity (PA). Delivery of motivational interventions for physical activity. Motivational PA interventions. Two papers, one presentation, two exams. prereq: 3126W or grad student

KIN 5125. Advances in Physical Activity and Health. (; 3 cr. ; A-F only; Periodic Spring)
This course exposes students with accurate and up-to-date information regarding physical activity as it relates to health in the United States. It is intended to enhance students' ability to identify important issues pertinent to physical activity and health, as well as develop and maintain a physically active lifestyle. Credits will not be given if taken as KIN 5720 with the same title.

KIN 5126. Social Psychology of Sport & Physical Activity. (3 cr. ; A-F only; Every Fall & Spring)
Theory/research on social influences, individual differences, motivational processes. How sport/physical activity contribute to psycho-social development. Social psychological factors influencing physical activity beliefs/behaviors. prereq: 3126W or equiv or grad student or instr consent

KIN 5136. Psychology of Coaching. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Psychological dimensions of coaching across age levels, including coaching philosophy, leadership, communication skills, motivation, and mental skills training for performance enhancement.

KIN 5141. Nutrition and Exercise for Health Promotion and Disease Prevention. (3 cr. ; A-F only; Every Fall)
Requirements/physiologic roles of nutrients/physical activity in promotion of health. Assessment of energy requirements. RDAs, food composition/safety, weight management. Prevention of chronic diseases. Coronary heart disease. prereq: FScN 1112 or equiv

KIN 5142. Applied Nutrition for Sport Performance and Optimal Health. (3 cr. ; A-F only; Every Spring)
This course is designed for students interested in nutrition as it relates to health, exercise and athletic training. Evidenced based information is used to apply current nutrition concepts to improve health, physical and athletic performance. Case studies as well as personal data are employed throughout course to support concepts of lecture.

KIN 5152. Curriculum Development in Physical Education. (; 2 cr. ; A-F or Audit; Every Spring)
Trends, issues, and challenges in early childhood/K-12 physical education. Potential effect on curriculum. prereq: initial licensure/MEd phys ed student

KIN 5181. Understanding Kinesiology Research. (; 3 cr. ; A-F only; Every Fall)
Prepares students to critically analyze research specific to kinesiology. prereq: Intro statistics recommended

KIN 5196. Practicum: Developmental/Adapted Physical Education. (1-4 cr. ; S-N only; Every Fall & Spring)
Observation of, participation in physical education instruction for students with disabilities. Current issues in developmental/adapted physical education. Exchange of ideas/problems. prereq: [5103 or 5104], instr consent

KIN 5201. Health Education Foundations. (; 3 cr. ; A-F only; Every Summer)
Foundations, conceptual framework, and personal philosophy of health. Analysis of individual, school, and community health information. Environmental/social aspects that contribute to healthy living.

KIN 5202. Current Issues in Health. (; 2 cr. ; A-F only; Every Summer)
Critical thinking for health issues in research/media. Issues specific to conflict, stress, public policy, and communication. Projects, debates.

KIN 5203. Health Media, Consumerism, and Communication. (; 2 cr. ; A-F only; Every Spring)
Effects of media, consumerism, technology, and health related issues. Students form/defend opinions on positive/negative aspects of how health information is disseminated and how individual health decisions are made.

KIN 5204. Methods in Health Education. (; 3 cr. ; A-F only; Every Fall)
Background knowledge/skills to deliver comprehensive health education program. Techniques, skills, and methods for teaching active learning projects. Lessons/units in health curriculum discussed/demonstrated. Focuses on grades 5-12. prereq: Health licensure student or instr consent

KIN 5205. Health Education Curriculum. (; 3 cr. ; A-F only; Every Fall)
Curriculum development in health education. Trends in society. How they impact teaching of health curriculum. Culminates in written curriculum for grades 5-12. prereq: Health licensure student or instr consent

KIN 5235. Advanced Biomechanics II: Kinetics. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Kinetic aspects of human movement (single/multi-joint torques, simple inverted pendulum models, mass-spring systems). Analysis of experimental data and of computer simulations. Lectures, seminars, lab. prereq: [3112 or equiv], PMed 5135, undergrad college physics, intro calculus

KIN 5328. International Sport: The Impact of the Olympic Games. (GP,HIS; 3 cr. ; A-F only; Periodic Fall, Spring & Summer)
In the late nineteenth century, Baron Pierre de Coubertin, a French aristocrat, worked tirelessly to revive the Olympic Games from Greek history. Through Baron de Coubertin's efforts, the first Olympic Games of the modern era took place in 1896 in Athens, Greece. From a small sporting event that hosted a little over 300 athletes from 13 countries the Olympic Games have grown over the last 120 years to one of the most viewed sporting events in the world. Today, the Olympic Games hosts over 10,000 athletes from over 200 countries. The International Olympic Committee (IOC), which runs the Olympic Games, is now one of the most powerful and richest sporting organizations in the world. The Olympic Games have had a profound impact on the world we live in and they provide us with a platform for examining changes in the world's cultural, economic, social and political processes over the last 120 years. This course explores the impact of a specific Olympic Game(s) held on that host city's culture, economy and political landscape. In addition, this course will explore that Olympic Games(s) impact on the world's cultural, social and political processes.

KIN 5371. Sport and Society. (; 3 cr. ; A-F or Audit; Every Spring)
Sport, sporting processes, social influences, systems. Structures that have effected and exist within/among societies, nations, and cultures. Contemporary issues such as social differentiation, violence, and honesty. prereq: [3126W, grad student] or instr consent

KIN 5385. Exercise for Healthy Aging & Disease Prevention and Management. (3 cr. ; A-F only; Every Spring)
Exercise testing/prescription with modifications required because of special considerations associated with aging, gender differences, or presence of medical conditions. prereq: Physiology or biology undergrad

KIN 5421. Sport Finance. (; 3 cr. ; A-F or Audit; Every Fall)
Introduction to financial analysis in sport. Cash flow statements, budgeting issues, traditional/innovative revenue producing strategies available to sport organizations. Discussion, practical analysis of current market. prereq: Grad student or instr consent

KIN 5435. Advanced Theory and Techniques of Exercise Science. (3 cr. ; A-F only; Every Spring)

Theoretical constructs, in-depth description of procedures used in exercise science research and clinical settings. Laboratory exercises, lectures. prereq: [3385, 4385, Kin major] or instr consent

KIN 5441. Applied Sport Science Research. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to varied contributions of sport sciences to athletic performance. Evaluation of historical research's contributions toward modern day research questions.

KIN 5461. Issues in the Sport Industry. (3 cr. ; A-F only; Every Fall)
Critical analysis of management issues within sport industry. Strategic management, corporate social responsibility, human resource management/diversity, governance, sport globalization, sport development. prereq: postbac or grad student or instr consent

KIN 5485. Exercise Testing and Prescription. (; 3 cr. ; A-F only; Every Fall)
This course will provide an introduction to exercise testing and prescription including basic placement of EKG placement and interpretation of an electrocardiogram. Students will also learn the basics of gas exchange and fitness test and the use of this information in the prescription of exercise in a variety of populations as well as use of electrocardiogram in clinical exercise testing and exercise prescription. prereq: [3385, 4385] or instr consent

KIN 5505. Human-Centered Design - Principles and Applications. (; 3 cr. ; A-F only; Every Fall)
Application of design to meet human needs. Design of fabricated products, tools/machines, software/hardware interfaces, art/culture, living environments, and complex sociotechnical systems.

KIN 5511. Sport and Gender. (; 3 cr. ; A-F only; Every Fall)
Critically examines women's involvement in/ contributions to sport, physical activity, and leisure.

KIN 5585. Pediatric Physiology and Health: Concepts and Applications. (; 2 cr. ; A-F only; Every Summer)
Current understanding of pediatric medicine and exercise physiology. Use of physical activity and weight management in the treatment of various diseases (i.e, obesity) that affect children and adolescents. prereq: 3385 or 4385

KIN 5601. Sport Management Ethics and Policy. (; 3 cr. ; A-F or Audit; Every Spring)
How to critically analyze ethical concepts that underpin or inform sport policies and evaluate sport policies from a normative point of view. Selected sport policy issues are used to illustrate relevance of ethical considerations in policy development and to explore the ethical implications of sport policy. prereq: MEd or grad student or instr consent

KIN 5631. Programming and Promotion in Sport. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to marketing concepts as they apply to sport industry. Consumer behavior, market research, marketing mix, corporate sponsorship, licensing. Discussion, practical application. prereq: Kin or Rec grad student or instr consent

KIN 5641. Scientific Theory and Application of Training and Conditioning in Sport. (; 3 cr. ; A-F only; Every Spring & Summer)
Current scientific literature on physiological adaptation through training/conditioning for sport. Applying methods in research journals to improve physiological adaptation through training/conditioning with sport specificity. prereq: 4385 or SPST 3641 or SPST 4641 or exercise physiology course or instr consent

KIN 5643. Applied Motion Capture and Movement Analysis Technology. (3 cr. ; A-F only; Every Fall)
Course provides students with the knowledge and tools to effectively analyze human movement patterns in a wide variety of field-based settings, such as assessing sport skill performance or measuring movement deficits after injury. Students will comprehend the basic, underlying components of movement and movement deficits. It is strongly suggested students have taken Physics, Biomechanics, and Human Anatomy. Credit will not be received if taken KIN 5720: Special Topics in Kinesiology with the topic title, Sport Movement Analysis.

KIN 5696. Practicum in Kinesiology. (; 1-6 cr. ; S-N only; Every Fall, Spring & Summer)
Practical experience in kinesiology under supervision of a University faculty member and an agency supervisor. prereq: [Kin MEd or grad student], instr consent

KIN 5720. Special Topics in Kinesiology. (; 2-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Current issues in the broad field and subfields in kinesiology, or related coursework in areas not normally available through regular offerings.

KIN 5723. Psychology of Sport Injury and Rehabilitation. (; 3 cr. ; A-F only; Every Fall)
Psychosocial bases of risk factors preceding sport injury, responses to the occurrence of sport injury, and the rehabilitation process. Lecture, discussion, guest lecture, interviews, and presentation experience. prereq: Intro psych course

KIN 5725. Organization and Management of Physical Education and Sport. (; 3 cr. ; A-F only; Every Spring & Summer)
Comprehensive analysis of organization and management of physical education and sport in educational settings. Focus on management and planning processes, management skills, functions, roles, decision making, leadership, shared systems, and organizational motivation. For physical education teachers, coaches, community sport administrators. prereq: Grad/ initial licensure or instr consent

KIN 5801. Legal Aspects of Sport and Recreation. (; 4 cr. ; A-F only; Every Fall & Spring)
Legal issues related to recreation, park, and sport programs/facilities in public/private sectors.

KIN 5804. National Collegiate Athletic Association (NCAA) Compliance. (; 2 cr. ; A-F only; Every Spring)
Governance structure, policies, and procedures in intercollegiate athletics. Careers in college athletics as coach, administrator, athletic trainer, counselor, etc. prereq: [Upper div undergrad or grad student] in KIN, instr consent

KIN 5841. Elite Performance and Environmental Considerations. (3 cr. ; A-F only; Every Summer)
An examination of elite athletic performance and the effects of environmental conditions on sport performance. Topics include altitude, heat and humidity, cold, wind, and other high stress environments. Students will investigate strategies such as nutrition/dehydration, training, and acclimatization. prereq: KIN 4385 or 4641 or instr consent suggested

KIN 5941. Clinical Movement Neuroscience. (; 3 cr. ; A-F only; Periodic Spring)
Various neural subsystems involved in controlling human motor function. How injury and disease of the nervous system affects motor behavior. Possibilities for rehabilitation and treatment. Lectures, seminars, class presentations. prereq: [3027 or ANAT 3001 or ANAT 3601 or ANAT 3611 or equiv], [PHSL 3051 or equiv], [4441]

KIN 5981. Research Methodology in Kinesiology and Sport Management. (3 cr. ; A-F only; Every Fall)
Defines/reviews various types of research in exercise/sport science, and physical education. Qualitative research, field studies, and methods of introspection as alternative research strategies to traditional scientific paradigm.

KIN 5987. Professional Skills and Grant Writing for Health Sciences. (; 2 cr. ; Student Option No Audit; Spring Odd Year)
Introduction to structure/function of different organizations (e.g., NIH, AHA). Writing/ reviewing grants/manuscripts. Preparing for a job in academia. prereq: Grad student

KIN 5992. Readings in Kinesiology. (; 1-9 cr. ; A-F only; Every Fall, Spring & Summer)
Independent study under tutorial guidance. prereq: [KIN upper div undergrad or MEd or grad student], instr consent

KIN 5995. Research Problems in Applied Kinesiology. (; 1-6 cr. ; A-F only; Every Fall, Spring & Summer)
Selected topics in physical activity and human performance. prereq: [Kin upper div undergrad or MEd or grad student], 15 cr of major coursework [including 4981 or 5981], instr consent

Korean (KOR)

KOR 1011. Beginning Korean I. (5 cr. ; Student Option No Audit; Every Fall)
Basic grammatical structure, vocabulary, expressions of modern colloquial Korean. Introduces Korean writing system.

KOR 1012. Beginning Korean II. (5 cr. ; Student Option No Audit; Every Spring)
Basic grammatical structure, vocabulary, expressions of modern colloquial Korean. prereq: 1011

KOR 3021. Intermediate Korean I. (5 cr. ; Student Option No Audit; Every Fall)
Speaking, reading, writing at intermediate level in modern colloquial Korean. Simple narration/ written reports. Some basic Chinese characters may be introduced. prereq: 1012

KOR 3022. Intermediate Korean II. (5 cr. ; Student Option No Audit; Every Spring)
Speaking, reading, writing at intermediate level in modern colloquial Korean. Narration/ written reports. Introduction of additional basic Chinese characters. prereq: 3021

KOR 3031. Third Year Korean I. (4 cr. ; Student Option No Audit; Every Fall)
Speaking, reading, writing at advanced level in modern colloquial Korean. Narration, written reports. Further Chinese characters introduced. prereq: 3022

KOR 3032. Third Year Korean II. (4 cr. ; Student Option No Audit; Every Spring)
Speaking, reading, writing at advanced level in modern colloquial Korean. Narration, written reports. Further Chinese characters introduced. prereq: 3031

KOR 3290. Korean Language Teaching Tutorial. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Students tutor beginning students of Korean and are part of department's Korean language team. prereq: Grade of A in 3032

KOR 3993. Directed Studies. (1-3 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Directed study in topics of Korean literature, culture, language, or linguistics. Prereq instr consent, dept consent, college consent.

KOR 4001. Beginning Korean I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Basic grammatical structure, vocabulary, expressions of modern colloquial Korean. Introduces Korean writing system. Meets with 1011.

KOR 4002. Beginning Korean II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Basic grammatical structure, vocabulary, expressions of modern colloquial Korean. Meets with 1012. prereq: 4001

KOR 4003. Intermediate Korean I for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Fall)
Speaking, reading, writing in modern colloquial Korean. Simple narration/written reports. Basic Chinese characters may be introduced. Meets with 3021. prereq: 4002, grad student

KOR 4004. Intermediate Korean II for Graduate Student Research. (5 cr. ; Student Option No Audit; Every Spring)
Speaking, reading, writing at intermediate level in modern colloquial Korean. Narration/ written reports. Introduction of additional basic Chinese characters. Meets with 3022. prereq: 4003

KOR 4005. Third Year Korean I for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Fall)
Speaking, reading, writing in modern colloquial Korean. Narration, written reports. Further Chinese characters. Meets with 3031. prereq: 4004

KOR 4006. Third Year Korean II for Graduate Student Research. (4 cr. ; Student Option No Audit; Every Spring)
Speaking, reading, writing at advanced level in modern colloquial Korean. Narration, written reports. Further Chinese characters introduced. prereq: 4005

KOR 4041. Advanced Readings in Modern Korean I. (4 cr. ; Student Option; Every Fall)
Speaking, listening, reading, writing. Content/ task-based course. Study vocabulary/read novels, journals, selections from Korean history/arts. Writing summaries, reports, simple reaction papers. prereq: 3032 or equiv or instr consent

KOR 4042. Advanced Readings in Modern Korean II. (4 cr. ; Student Option; Every Spring)
Speaking, listening, reading, writing. Content/ task-based course. Study vocabulary/read novels, journals, selections from Korean history/arts. Writing summaries, reports, simple reaction papers. prereq: 4041 or equiv or instr consent

KOR 5040. Readings in Korean Texts: North Korean Dialect. (; 3 cr. [max 9 cr.] ; Student Option No Audit; Periodic Fall & Spring)
Expose advanced students of Korean to various North Korean contexts. Improve ability to understand North Korean literary work. Various authentic texts from North Korea. Mostly taught in Korean. prereq: 3022 or intermediate level of Korean proficiency

KOR 5140. Readings in Sino-Korean Texts. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Sino-Korean vocabulary/characters necessary for advanced and superior level of knowledge in Korean. Students conduct research projects based on specialized readings in their own fields of study. prereq: 3032 or equiv or instr consent

KOR 5211. Introductory Classical Chinese I. (3 cr. ; Student Option; Periodic Fall)
Reading excerpts from canonical Chinese texts. Transnational nature of Classical Chinese/its importance in study of East Asian cultures. Taught in English. prereq: Two years of an East Asian language (Chinese, Japanese, Korean) or equivalent or instr consent

KOR 5212. Introductory Classical Chinese II. (3 cr. ; Student Option; Periodic Spring)
Reading excerpts from canonical Chinese texts. Transnational nature of Classical Chinese/its importance in study of East Asian cultures. Taught in English. prereq: 5211 and two years of an East Asian language (Chinese, Japanese, Korean) or equivalent or instr consent

KOR 5993. Directed Studies. (1-5 cr. [max 15 cr.] ; Student Option No Audit; Every Fall & Spring)
Guided individual study of Korean language or linguistics. prereq: instr consent, dept consent, college consent

Laboratory Medicine and Path (LAMP)

LAMP 4177. Nature of Disease: Pathology for Allied Health Students. (; 3 cr. ; Student Option; Every Spring & Summer)
Human disease as alteration of normal structure/function of anatomy/physiology. Variety of lecturers cover their area of expertise. Grade based on five unit exams. Offered online in spring and summer. prereq: One anatomy course, one physiology course, or instr consent

Land and Atmospheric Science (LAAS)

LAAS 5050. Integrated Topics in Land & Atmospheric Science. (; 3 cr. ; A-F or Audit; Every Fall)
Earth system science. Interactions between the land and atmosphere. Biogeochemistry, human-environment interactions, environmental biophysics, and global environmental change.

LAAS 5051. Thesis Proposal Writing for Land & Atmospheric Science. (; 2 cr. ; A-F or Audit; Every Spring)
Grant proposals, including proposal formats of various funding sources, how to develop a significance statement, hypotheses and objectives, background, methods, project summary, time line, and budget. Critique proposal samples/discuss other aspects of seeking funding for research. Discuss LAAS graduate program prelim exam process.

LAAS 5311. Soil Chemistry and Mineralogy. (; 3 cr. ; Student Option; Every Fall & Spring)
Structural chemistry, origin/identification of crystalline soil clay minerals. Structure of soil organic matter. Chemical processes in soil: solubility, adsorption/desorption, ion exchange, oxidation/reduction, acidity, alkalinity. Solution of problems related to environmental degradation, plant nutrition, and soil genesis. prereq: [[Chem 1022 or equiv], Phys 1102, grad] or instr consent

LAAS 5416. Precision Agriculture and Nutrient Management. (3 cr. ; Student Option; Every Fall)
Precision Agriculture is an integrated information- and technology-based modern agricultural management system, with the intent to manage the spatial and temporal variability associated with all important aspects of agricultural production to achieve optimum yield, quality, efficiency and profitability, protection of the environment and sustainable development. It is an important direction of future agriculture. The focus of this course is

on the concept, principles and technologies of precision agriculture and their applications in nutrient resource management. The specific topics include concept and development of precision agriculture and nutrient management, key supporting technologies, soil spatial variability and analysis, yield data analysis, remote sensing-based precision nutrient management, management zone delineation and application, crop growth modeling, combining crop growth modeling and remote sensing for precision nutrient management, and the challenges and future directions of precision agriculture and nutrient management. Precision agriculture and nutrient management is data intensive and the students will also learn basic agro-informatics through hands-on experiences and computer exercises. This course will involve background knowledge and technologies from multi-disciplines, which will facilitate multi-disciplinary integration and innovation. The class will include both lectures and activities such as case studies, group discussion and presentation, problem-solving, and hands-on exercises. This course is intended for graduate students and upper-level undergraduate students whose major is related to agriculture, environmental science and sustainability. This course is equivalent to LAAS 5480 (001) in Fall of 2018 only. This course was taught one semester as a topic course and is only equivalent to that particular topic and semester.

LAAS 5425. Atmospheric Processes I: Thermodynamics and Dynamics of the Atmosphere. (; 3 cr. ; A-F or Audit; Fall Odd Year)
Basic laws governing atmospheric motion through analysis of atmospheric dynamics and thermodynamics at the micro, synoptic, and global scales. Fundamental thermodynamic and dynamical processes/equations governing the behavior of the atmosphere/apply to larger-scale geophysical situations. prereq: One yr college-level [calculus, physics]

LAAS 5426. Atmospheric Processes II: Radiation, Composition, and Climate. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Atmospheric radiation, composition/chemistry, climate change. Radiative transfer in Earth's atmosphere. Changing chemical makeup of troposphere/stratosphere. Interplay between natural processes and human activities in air pollution, stratospheric ozone depletion, and chemical forcing of climate. Anthropogenic contribution to climate change/role of land-atmosphere feedbacks affecting atmosphere's energy budget and cycling of greenhouse gases. Application to numerical modeling. prereq: [one yr college-level [calculus, physics, chemistry]]; LAAS 5425 recommended

LAAS 5480. Special Topics in Land and Atmospheric Science. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Lectures by visiting scholar or regular staff member. Topics specified in Class Schedule. prereq: grad student or instr consent

LAAS 5515. Soil Formation: Earth Surface Processes and Biogeochemistry. (; 3 cr. ; A-F or Audit; Every Fall)
Basic soil morphology, soil profile descriptions. Pedogenic processes, models of soil development. Soil geomorphology, hydrology, hillslope processes. Digital spatial analysis. Soil classification. Soil surveys, land use. Soil geography. prereq: 2125 or instr consent

LAAS 5621. Soil and Environmental Genomics. (3 cr. ; Student Option; Every Fall)
Molecular and genomic approaches to answer ecological questions related to soil and environmental sciences. Genomics/transcriptomics/proteomics. Metagenomics and single cell genomics. Includes computer exercise to learn basic bioinformatics. No prior programing skills are required. prereq: basic microbiology courses (e.g., MicB 3301) recommended.

Landscape Architecture (LA)

LA 1001. Sustainability by Design. (ENV; 3 cr. ; A-F only; Every Spring)
How the Twin Cities region (as example of many metropolitan areas) can adapt to climate change, depleted energy resources, and other environmental impacts. How cities and places are designed, how places influence sustainable lifestyles. How to adapt the Twin Cities/other cities to a changing world.

LA 1201. Learning from the Landscape. (AH,DSJ; 3 cr. ; A-F or Audit; Every Fall)
Physical elements shaping the world. Shapes, forms, and order of towns, cities, and countryside. How design, planning, and natural systems, taken together, shape physical surroundings. Lectures, discussions, field trips.

LA 1301. Introduction to Landscape Architecture Drawing. (AH; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Development of basic skills in perceiving/representing material environment. Sketching/drawing conventions of visual phenomena/forms.

LA 1401. The Designed Environment. (AH; 3 cr. ; A-F or Audit; Every Fall & Spring)
Examination of relationships between place and space, and realms of the ideal and real, public and private. Survey of how the fields of architecture, landscape architecture, and urban design have explored those issues.

LA 1601. Design and Equity. (AH,DSJ; 3 cr. ; A-F or Audit; Every Spring)
Investigate world from new perspectives. Spaces of everyday life that reflect/shape values. Meets with LA 3601.

LA 2301. Advanced Representation for Environmental Design. (; 3 cr. ; Student Option; Every Fall)
Perceiving/representing material environment. Multiple media approaches in environmental design representation. Analytic diagramming as means of developing design ideas. Interface between hand rendered and digital representation. prereq: 1301

LA 3001. Understanding and Creating Landscape Space. (; 4 cr. ; A-F or Audit; Every Fall)
The subject of this course is Landscape Architecture. In this class we investigate its principles, focusing on the discipline's distinct fusion of both the arts and sciences to create useful and meaningful outdoor spaces to meet specific environmental and social needs. Class periods alternate between lectures and ?studio' work periods in which students actively work on projects (site analysis, representation, modeling and oral presentation). Over the course of the semester student receive feedback (instructor, guests and peer review) and participate in class discussion. Students receive additional assignments including critical literature review, site analysis and infrastructure research.

LA 3002. Informants of Creating Landscape Space. (; 4 cr. ; A-F or Audit; Every Spring)
In this course, you will analyze and design specific projects, considering both their physical and conceptual connection to the larger context in which they are located. The aim is for you to gain an understanding of the relationship of landscape to architecture at the site and urban scales; consider the effects of construction and ground manipulation on the perception and experience of space; and explore the possibilities of layering and transparency, enclosure and adjacencies, in between spaces and connectors. Ultimately, the course will investigate the intersection of physical, biological, and cultural attributes, the opportunities and constraints they produce, the design of space based upon these features, and the [re]presentation of these designs. We will also be building the soft skills that help us grow to be more empathetic and understanding of our client's needs and desired outcomes and practice them throughout the workshop in order to translate experience and input into program + design.

LA 3003. Climate Change Adaptation. (; 3 cr. ; Student Option; Every Fall)
This course will study nations, regions, cities, and communities that have adapted or are undergoing adaptation to climate change. The course will examine different approaches in planning, policy, economics, infrastructure, and building design that increase the adaptive capacity of human settlements. These approaches will vary in scale from the construction of new neighborhoods to the implementation of storm water gardens. The course will emphasize multi-functional strategies which couple climate change adaptation with other urban improvements. Learning Objectives: To understand role of climate adaptation in the reconfiguration of human settlements. To apply design thinking to the issue of climate adaptation in the context of an urban society.To apply knowledge to challenge-based coursework on managing climate risk, decreasing climate vulnerability, and building resilience to climate change.

LA 3004. Regional Environmental Landscape Planning. (4 cr. ; Student Option; Every Spring)
An exploration of critical regional landscape parameters affecting the growth and development of metropolitan areas. Students

assess these parameters and prepare a multifunctional land use plan for a defined locale. prereq: prereq FR 3131 or Concurrent registration is required (or allowed) in FR 3131 or GEOG 3561 or Concurrent registration is required (or allowed) in GEOG 3561, or equivalent

LA 3204. Holistic Landscape Ecology and Bioregional Practice. (; 3 cr. ; A-F or Audit; Every Spring)
Bioregional practice, how it responds to landscape ecology of great bioregions. Scientific/cultural basis for bioregional design and landscape sustainability.

LA 3413. Introduction to Landscape Architectural History. (GP,HIS; 3 cr. ; A-F or Audit; Every Spring)
Study of landscape architecture's roots by examining the creation of landscapes over time. Influences of ecological and environmental issues as well as political, economic, and social contexts on the cultural construction of landscape ideas and meaning and creation of landscape architectural works.

LA 3501. Environmental Design and Its Biological and Physical Context. (ENV; 3 cr. ; A-F or Audit; Every Spring & Summer)
Dynamic relationships between environmentally designed places and biological/physical contexts. Integration of created place and biological/physical contexts. Case studies, student design.

LA 3514. Making the Mississippi. (CIV; 3 cr. ; A-F or Audit; Every Spring)
Environmental parameters affecting growth/development of metropolitan areas. Students assess these parameters and prepare a multi-functional land use plan for a defined locale.

LA 3571. Landscape Construction: Site Systems and Engineering. (; 3 cr. ; A-F or Audit; Every Fall)
Theory applications of landform systems for design. Landform typology, representation methods, manipulation techniques, use of land survey data, earthwork construction issues. Spatial accommodation of vehicles in landscape architecture, including road design. prereq: BED major or BED minor or instr consent

LA 3601. Design and Equity. (AH,DSJ; 3 cr. ; A-F or Audit; Every Spring)
Investigate world from new perspectives. Spaces of everyday life that reflect/shape values. Meets with LA 1601.

LA 4001. Sustainable Landscape Design and Planning Practices. (; 3 cr. ; Student Option; Every Fall)
Changes in global biodiversity. Quality of air/water resources. Development/consumption of energy resources. Climate change. Design for sustainable practices to create evocative/meaningful landscapes. prereq: 1301, [2301 or ARCH 3301], 3001, 3002

LA 4002. Implementation of Sustainable Landscape Design and Planning Practices. (; 3 cr. ; A-F only; Every Spring)
Capstone experience. Service-learning project. Groups of students develop sustainable landscape designs/plans that address project implementation. prereq: 1301, 2301, 2302, 3001, 3002, 3003, 4001

LA 4096. Internship in Landscape Design and Planning. (; 1 cr. ; S-N only; Every Fall, Spring & Summer)
Supervised professional experience in environmental design firms or government agencies. Students perform professional services and relate these experiences to their education in environmental design. prereq: 1301, 2301, 2302, 3001, 3002, 3003

LA 4160H. Thesis/Capstone Project. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Individualizes honors experience by connecting aspects of major program with special academic interests.

LA 4755. Infrastructure, Natural Systems, and Space of Inhabited Landscapes. (TS; 3 cr. ; A-F or Audit; Every Fall)
Seminar, cross-disciplinary. Urban infrastructural solutions to mitigate/reverse anthropogenic impacts on Earth. Design of sustainable urban infrastructure systems. Policy options, technologies. Criteria, design methods. prereq: Jr or sr

LA 5001. Sustainable Landscape Design and Planning Practices. (; 3 cr. ; Student Option; Every Fall)
Systemic, formal and spatial relationships. Quantitative and qualitative changes in global biodiversity, quality of the earth's air, soil, and water resources, development and consumption of energy resources and climate change. Development of design processes for selection, deployment, and management of sustainable practices. prereq: 5201, 5203

LA 5002. Implementation of Sustainable Landscape Design and Planning Practices. (; 3 cr. ; Student Option; Every Spring)
Design exploration of a complex urban site. Habitation patterns and sociocultural systems that slow and reverse environmental degradation and climate change. Researching/creating landscape patterns that address multi-scalar sustainability. prereq: 5201, 5203

LA 5003. Climate Change Adaptation. (; 3 cr. ; Student Option; Every Fall)
This course will study nations, regions, cities, and communities that have adapted or are undergoing adaptation to climate change. The course will examine different approaches in planning, policy, economics, infrastructure, and building design that increase the adaptive capacity of human settlements. These approaches will vary in scale from the construction of new neighborhoods to the implementation of storm water gardens. The course will emphasize multi-functional strategies which couple climate change adaptation with other urban improvements. Learning Objectives: ? To understand role of climate adaptation in the reconfiguration of human settlements. ? To apply design thinking to the issue of climate adaptation in the context of an urban society. ? To apply knowledge to challenge-based coursework on managing climate risk, decreasing climate vulnerability, and building resilience to climate change.

LA 5004. Regional Environmental Landscape Planning. (4 cr. ; Student Option; Every Spring)
An exploration of critical regional landscape parameters affecting the growth and development of metropolitan areas. Students assess these parameters and prepare a multifunctional land use plan for a defined locale. prereq: PA 5271 or LA 5131 or FR 3131 or GEOG 3561 or GEOG 5561 or equivalent

LA 5096. Internship for Master of Landscape Architecture Students. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Students will receive supervised professional experience in a landscape architectural design firm in order to gain employment experience related to the field as well as receiving graduate credit. As a requirement of the course, students will submit a reflection paper relating the professional experiences to their education. Must have director of graduate studies (DGS) approval of the internship to register.

LA 5100. Topics: Landscape Architecture. (; 1-3 cr. [max 6 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Current and emerging topics in the field of landscape architecture. Taught by regular or visiting faculty in their areas of specialization.

LA 5131. Geospatial Data Analysis and Design. (3 cr. ; A-F only; Every Fall)
Introduction to geospatial data analysis/application in landscape architectural, environmental design research/practice. prereq: Master of Landscape Architecture Student or instr consent

LA 5201. Making Landscape Spaces and Types. (; 6 cr. ; A-F or Audit; Every Fall)
Design exploration using 3-D models and historical precedent studies to create outdoor spaces for human habitation and use. Application of the basic landscape palette of landform, plants, and structures to give physical, emotional, cognitive, and social definition to created places. prereq: B.E.D accelerated status or LA grad or instr consent

LA 5202. Landscape Analysis Workshop. (; 1 cr. ; S-N only; Every Fall)
Introduction to field techniques for site analysis, including vegetation, soil, and landform description. One-week session, before fall term, at lake Itasca Forestry and Biological Station.

LA 5203. Ecological Dimensions of Space Making. (; 6 cr. ; A-F or Audit; Every Spring)
Design studio experience drawing on ecological, cultural, aesthetic influences to explore development of design ideas responsive to ecological issues and human experience. prereq: LA major or instr consent; recommended for both BED and Grad students

LA 5204. Metropolitan Landscape Ecology. (; 3 cr. ; A-F only; Every Fall & Spring)
Theories/principles of holistic landscape ecology. People, nature, and environmental stewardship in metropolitan landscapes. Urban areas, rural areas that provide food, water, energy, and recreation. prereq: BED

accelerated status or LA grad student or instr consent

LA 5376. Representation I. (4 cr. [max 8 cr.] ; A-F only; Every Fall)
Strengthen freehand sketching ability. Develop observation skills. Develop ability to communicate ideas clearly through visual expression. Learn/explore conventions of landscape architectural drawing. Basic tools/ techniques associated with Adobe Photoshop CS6. Promote fluidity between analog/ digital media. Create drawing personality/ graphic style. prereq: Master of Landscape Architecture (MLA) or Accelerated Bachelor of Environmental Design.

LA 5377. Representation II. (4 cr. [max 8 cr.] ; A-F only; Every Spring)
Explore multi-media rendering techniques. Increase knowledge of art materials/graphic programs. Increase hand-drawing ability. Color theory, contemporary graphic styles. Layout, grid systems/type. Increase speed of drawing/ producing renderings. Create or strengthen graphic style. prereq: Master of Landscape Architecture (MLA) or Accelerated Bachelor of Environmental Design

LA 5378. Representation III. (3 cr. ; A-F or Audit; Every Spring)
Increase skills learned in Representation I and Representation II and develop 3-D modeling skills, distill complex information to visually explain a design concept while gaining skills that are valuable in the workplace and create portfolio quality work.

LA 5381. The City in Visual Culture. (3 cr. ; A-F only; Every Spring)
Visual culture is not just that we see the way we do because we are social animals, but also that our social arrangements take the forms they do because we are seeing animals. The social arrangements of the city, the buildings and public spaces, are concretized expressions of power and culture. The course will, through multiple drawings, attempt to critically examine these social arrangements as they have evolved over time (history) by re-presenting the city (as human experience and aesthetic form). The course will be structured around on-site work sessions, critical readings, on- and off-site lectures, and weekly drawing assignments.

LA 5400. Topics in Landscape Architecture. (; 1-3 cr. [max 12 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Current topics in landscape architecture. Taught by regular or visiting faculty in their areas of specialization.

LA 5401. Directed Studies in Emerging Areas of Landscape Architecture. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
tbd prereq: instr consent

LA 5402. Directed Studies in Landscape Architecture History and Theory. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Independent studies under the direction of landscape architecture faculty. prereq: instr consent

LA 5403. Directed Studies in Landscape Architecture Technology. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Independent studies under the direction of landscape architecture faculty. prereq: instr consent

LA 5404. Directed Studies in Landscape Architecture Design. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Independent studies under the direction of landscape architecture faculty. prereq: instr consent

LA 5405. Interdisciplinary Studies in Landscape Architecture. (; 1-6 cr. [max 12 cr.] ; A-F or Audit; Every Fall & Spring)
Research, planning, or design projects. Topics vary. prereq: instr consent

LA 5408. Landscape Architecture, Architecture, and Planning. (; 3-4 cr. ; A-F or Audit; Every Fall & Spring)
Methods and theories in urban design and human behavior. Students develop urban design journal as tool for experiencing, analyzing, and recording the urban landscape, its fabric, spatial elements, and individual components, and for analyzing design solutions. prereq: Admitted to Denmark International Study Program co-sponsored by the University; given in Denmark

LA 5413. Introduction to Landscape Architectural History. (3 cr. ; A-F or Audit; Every Fall)
Introductory course examines the multiple roots of landscape architecture by examining the making of types of landscapes over time. Emphasis on ecological and environmental issues, and issues related to political, economic, and social contexts of landscape architectural works. prereq: One course in history at 1xxx or higher

LA 5414. Study Abroad: History and Culture. (0-3 cr. ; A-F only; Every Spring)
This is a history course aimed at investigating the rich urban, landscape and architectural legacy of Spain, tracing the multiple histories of the Spain through the ceremonial and quotidian spaces of Madrid as it developed as the capital city of the Catholic monarchy and the monuments of Al-Andalus, the Islamic caliphate in Southern Spain. The course is structures so that each week there will be an in-class lecture and a walking tour of Madrid. There will also be several field trips to historic sites.

LA 5514. Making the Mississippi. (; 3 cr. ; A-F or Audit; Every Spring)
Critical environmental parameters affecting growth/development of metropolitan areas. Students assess these parameters and prepare a multi-functional land use plan for a defined locale.

LA 5576. Ecological Restoration Project Planning and Management. (3 cr. ; A-F only; Every Fall)
Applied practice of ecological restoration of landscapes. Grasslands, wetlands, forests, disturbed agricultural sites, former industrial parcels. Restoration management, skills needed to lead successful projects. prereq: [MLA student, senior B.E.D.] or senior or grad with one college course in ecology/one college course in plant science or botany or instr consent

LA 5705. Regreening Minds, Cities, and Regions. (3 cr. ; A-F only; Every Fall)
Emerging types of green spaces. Urban agriculture, urban waterscapes, urban wilderness. Politics, policies, metrics, planning of alternative visions of urban nature/ sustainability in American cities. Role of social networks in creating emerging types of green spaces. prereq: Landscape Architecture graduate student or instr consent

LA 5755. Infrastructure, Natural Systems and the Space of Inhabited Landscapes. (; 3 cr. ; A-F or Audit; Every Fall)
Cross-disciplinary exploration of urban infrastructural solutions to mitigate/reverse anthropogenic impacts on Earth. Design of sustainable urban infrastructure systems, policy options, available technologies, criteria, design methods. prereq: Grad student

LA 5761. Infrastructure + Culture. (3 cr. ; A-F only; Every Spring)
As attitudes about ecology and nature are shifting and as the threats from climate change are becoming more pronounced, new infrastructure works in the Netherlands are caught a a double bind of responding to ecological concerns and protection of the land. This course will explore both historic and modern water management infrastructures as cultural and engineering constructs through visual representation as a form of critique. The course will be structured around study trips, preparatory readings, on-site lectures, and will be supplemented by the participation of several guest speakers.

LA 5771. Landscape Infrastructure and Systems I. (3 cr. [max 6 cr.] ; A-F only; Every Fall)
Basic principles, techniques, skills of creating infrastructures of built landscapes. Basic concepts of simple plant taxonomy, plant community structure, earthwork, water management, landscape structures. Small site scale design development. prereq: Master of Landscape Architecture Student, [Accelerated Track B.E.D or instr consent]

LA 5772. Landscape Infrastructure Systems II. (3 cr. [max 6 cr.] ; A-F only; Every Spring)
Principles, techniques, skills of creating ecological infrastructures of built landscapes systems. Builds on basic concepts taught in LA 5771. Focuses on ecological connections among plants, landscape structure, earthwork techniques, water management, landscape structural systems. prereq: Master of Landscape Architecture Student, [Accelerated BED Student or instr consent]

Lang, Teaching, and Technology (LGTT)

LGTT 5110. Technology in the Second Language Classroom. (; 2 cr. ; Student Option; Every Spring & Summer)

Examine, evaluate, and use technology in language teaching. Theoretical background, demonstration, hands-on exploration.

LGTT 5111. Using the Web for Communicative Language Learning. (; 2 cr. ; Student Option; Every Summer)
This is a fully online course that is intended for K?16 second language instructors who are looking for ways to increase their knowledge of web applications and ways to incorporate them into their second language curriculum to encourage student communication and collaboration. Participants can expect to learn effective ways to incorporate current web technology into their curriculum to promote written and spoken language comprehension and production, and interpersonal communication. The course will address lesson planning, implementation, and assessment issues related to using these tools in second language learning.

LGTT 5710. Special Topics in Language Teaching and Technology. (; 2 cr. [max 6 cr.] ; Student Option; Periodic Fall & Summer)
Examine, evaluate, apply specific area of technology to K-higher education, second/foreign language teaching/learning in classroom, independent study, distance education environments.

Language Centr CLA Courseshare (LANG)

LANG 1021. Beginning Czech I. (4 cr. ; Student Option; Every Fall)
CourseShare course hosted by Indiana University. Received via video conferencing. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1031. Beginning Danish I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1051. Beginning Indonesian I. (4 cr. ; Student Option; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 1061. Beginning Persian I. (4 cr. ; Student Option No Audit; Every Fall)
Beginning Persian I is a Big Ten Academic Alliance CourseShare course. The instructor is at Rutgers University, but you enroll and receive credit for it at the University of Minnesota. This is a hybrid course partially received via video conferencing. It is intended for beginners. Heritage speakers and those with prior knowledge of Persian should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1062. Beginning Persian II. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1071. Beginning Polish I. (4 cr. ; Student Option No Audit; Every Fall)
Beginning Polish I is a Big Ten Academic Alliance CourseShare course. The instructor is at Indiana University, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. It is intended for beginners. Heritage speakers and those with prior knowledge of Polish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1072. Beginning Polish II. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by Ohio State University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1073. Beginning Polish I. (2 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Chicago. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1074. Beginning Polish II. (2 cr. ; Student Option; Every Spring)
Beginning Polish II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Chicago but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. If is intended for students who have completed LANG 1073. Heritage speakers and those with prior knowledge of Polish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1074. Beginning Polish II. (2 cr. ; Student Option; Every Spring)
Beginning Polish II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Chicago but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. If is intended for students who have completed LANG 1073. Heritage speakers and those with prior knowledge of Polish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1075. Beginning Polish III. (2 cr. ; Student Option; Every Spring)
Beginning Polish III is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Chicago but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. If is intended for students who have completed LANG 1074. Heritage speakers and those with prior knowledge of Polish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1081. Beginning Sanskrit I. (; 2 cr. ; Student Option; Every Fall)
Beginning Sanskrit I is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Chicago but you enroll and receive credit for it at the University of Minnesota. This course is received online. It is intended for beginners. Students with prior knowledge of Sanskrit should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1101. Beginning Modern Tibetan I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 1102. Beginning Modern Tibetan II. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 1111. Beginning Turkish I. (; 4 cr. ; Student Option; Every Fall)
Beginning Turkish I is a Big Ten Academic Alliance CourseShare course. The instructor is at Rutgers University but you enroll and receive credit for it at the University of Minnesota. This course is received online. It is intended for beginners. Heritage learners or students with prior experience with Turkish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1112. Beginning Turkish II. (4 cr. ; Student Option; Every Spring)
Beginning Turkish II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course connects via video conferencing technology, and there is a fixed time and location. It is intended for students who completed Beginning Turkish I. Heritage speakers and those with prior knowledge of Turkish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1112. Beginning Turkish II. (4 cr. ; Student Option; Every Spring)
Beginning Turkish II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course connects via video conferencing technology, and there is a fixed time and location. It is intended for students who completed Beginning Turkish I. Heritage speakers and those with prior knowledge of Turkish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1121. Beginning Vietnamese I. (; 4 cr. ; Student Option No Audit; Every Fall)
Online CourseShare course hosted by Michigan State University. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1122. Beginning Vietnamese II. (; 4 cr. ; Student Option; Every Spring)
Online CourseShare course hosted by Michigan State University. Email the CLA

Language Center at elsie@umn.edu for more information.

LANG 1131. Beginning Yiddish I. (3 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Maryland. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1141. Beginning Yoruba I. (4 cr. ; Student Option No Audit; Every Fall)
LANG 1141 - Beginning Yoruba I is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. It is intended for beginners. Heritage speakers and those with prior knowledge of Yoruba should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1161. Beginning Hungarian I. (4 cr. ; Student Option; Every Fall)
CourseShare course hosted by Indiana University. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 1162. Beginning Hungarian II. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by Indiana University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1171. Beginning Aramaic I. (3 cr. ; Student Option; Every Fall & Spring)
CourseShare course hosted by Penn State University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1181. Beginning Filipino I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by Rutgers University. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1182. Beginning Filipino II. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 1191. Beginning Romanian I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by Ohio State University. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1201. Beginning Basque I. (2 cr. ; Student Option; Every Fall)
Beginning Basque I is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Chicago, but you enroll and receive credit for it at the University of Minnesota. This course is received online. It is intended for beginners. Heritage speakers and those with prior knowledge of Basque should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1211. Beginning Maya I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by Indiana University. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1231. Beginning Modern Greek I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by Rutgers University. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1232. Beginning Modern Greek II. (4 cr. ; Student Option No Audit; Every Spring)
CourseShare course hosted by Rutgers University . Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 1251. Beginning Haitian Creole I. (4 cr. ; Student Option; Every Fall)
LANG 1251 - Beginning Haitian Creole I is a Big Ten Academic Alliance CourseShare course. The instructor is at Indiana University, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. It is intended for beginners. Heritage speakers and those with prior knowledge of Haitian Creole should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1261. Beginning Ukrainian I. (; 4 cr. ; Student Option; Every Fall)
Beginning Ukrainian I is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Michigan but you enroll and receive credit for it at the University of Minnesota. This course is received online. It is intended for beginners. Heritage learners or students with prior experience with Ukrainian should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 1281. German for Reading Knowledge. (; 3 cr. ; Student Option; Every Fall)
German for Reading Knowledge is a Big Ten Academic Alliance CourseShare course. The instructor is at Rutgers University, but you enroll and receive credit for it at the University of Minnesota. This course is received online. It is intended for beginners. Heritage learners or students with prior experience with German should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 2011. Accelerated Catalan I. (2 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Chicago. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 2012. Accelerated Catalan II. (2 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Chicago. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 2021. Intermediate Czech I. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by Indiana University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 2022. Intermediate Czech II. (3 cr. ; Student Option; Every Spring)
CourseShare course hosted by Indiana University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 2031. Intermediate Danish I. (4 cr. ; Student Option; Every Fall)
Intermediate Danish I is a Big Ten Academic Alliance CourseShare course. The instructor is at the university of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. If is intended for students who have completed Beginning II. Heritage speakers and those with prior knowledge of Danish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 2061. Intermediate Persian I. (; 4 cr. ; Student Option; Every Fall)
CourseShare course hosted by Ohio State University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 2062. Intermediate Persian II. (4 cr. ; Student Option No Audit; Every Spring)
Intermediate Persian II is a Big Ten Academic Alliance CourseShare course. The instructor is at Ohio State University, but you enroll and receive credit for it at the University of Minnesota. This course will be received via video conferencing at a fixed location. This course is intended for students who completed Intermediate Persian I. Heritage speakers and those with prior knowledge of Persian should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 2071. Intermediate Polish I. (4 cr. ; Student Option No Audit; Every Fall)
Intermediate Polish I is a Big Ten Academic Alliance CourseShare course. The instructor is at Indiana University, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. It is intended for students who have completed Beginning Polish II or equivalent. Heritage speakers and those with prior knowledge of Polish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 2072. Intermediate Polish II. (4 cr. ; Student Option No Audit; Every Spring)
CourseShare course hosted by Ohio State University. Received via video conferencing and partially online. Please email the Language Center at elsie@umn.edu for more information.

LANG 2101. Intermediate Modern Tibetan I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video

conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 2102. Intermediate Modern Tibetan II. (4 cr. ; Student Option No Audit; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 2111. Intermediate Turkish I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 2121. Intermediate Vietnamese I. (; 4 cr. ; Student Option No Audit; Every Fall)
Online CourseShare course hosted by Michigan State University. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 2122. Intermediate Vietnamese II. (; 4 cr. ; Student Option; Every Spring)
Online CourseShare course hosted by Michigan State University. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 2133. Holocaust Literature in Yiddish. (; 1 cr. ; Student Option; Every Fall)
Holocaust Literature in Yiddish is a Big Ten Academic Alliance CourseShare course. The instructor is at the Rutgers University but you enroll and receive credit for it at the University of Minnesota. This course is received online and has no scheduled meeting times. This class is by permission only. To enroll, you must also be registered for LANG 3751 Holocaust Literature in Translation and have a background in Yiddish. Contact the Language Center at elsie@umn.edu or 612-626-6017 to request permission to enroll.

LANG 2181. Intermediate Filipino I. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by Rutgers University. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 2192. Intermediate Romanian II. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by Ohio State University. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 2201. Accelerated Basque I. (3 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Illinois Urbana-Champaign. Received via video conferencing. This course requires intermediate-level proficiency in Spanish, French or another Romance language. Please email the Language Center at elsie@umn.edu for permission to register.

LANG 2231. Intermediate Modern Greek I. (4 cr. ; Student Option No Audit; Every Fall)
Intermediate Modern Greek I is a Big Ten Academic Alliance CourseShare course. The instructor is at Rutgers University, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. It is intended for for students who have completed the beginning sequence. Heritage speakers and those with prior knowledge of Modern Greek should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 2232. Intermediate Modern Greek II. (4 cr. ; Student Option No Audit; Every Spring)
CourseShare course hosted by Rutgers University. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 2261. Intermediate Romanian I. (4 cr. ; Student Option; Every Fall)
Intermediate Romanian I is a Big Ten Academic Alliance CourseShare course. The instructor is at Ohio State University (OSU), but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. If is intended for students who have completed Beginning II. Heritage speakers and those with prior knowledge of Romanian should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 3011. Catalan Culture and Society: Art, Music, and Cinema. (2 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Chicago. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 3012. Advanced Catalan: Language, Society and Culture. (2 cr. ; Student Option; Every Fall)
Online CourseShare course hosted by the University of Chicago. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 3013. Advanced Catalan: Language, Society and Culture II. (2 cr. ; Student Option; Every Fall)
CourseShare course hosted by the University of Chicago. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 3014. Reading Catalan for Research Purposes. (; 2 cr. ; Student Option No Audit; Every Fall)
Reading Catalan for Research Purposes is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Chicago but you enroll and receive credit for it at the University of Minnesota. This fast-paced online course prepares students to read and do research using texts in Catalan. Students will work on grammar, vocabulary, and reading skills, and they will also get introduced to some translation strategies. Part of the texts students will work on will be academic texts in their respective areas of research. Please contact the Language Center at elsie@umn.edu or 612-626-6017 for placement.

LANG 3051. Advanced Indonesian I. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 3071. Advanced Polish I. (3 cr. ; Student Option No Audit; Every Fall)
Advanced Polish I is a Big Ten Academic Alliance CourseShare course. The instructor is at Indiana University, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. It is intended for students who have completed Intermediate Polish II or equivalent. Heritage speakers and those with prior knowledge of Polish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 3111. Advanced Turkish I. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by the University of Illinois. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 3113. Advanced Turkish and Azeri I. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 3121. Advanced Vietnamese I. (3 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 3122. Advanced Vietnamese II. (3 cr. ; Student Option; Every Spring)
Advanced Vietnamese II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course connects via video conferencing technology, and there is a fixed time and location. It is intended for students who completed Advanced I. Heritage speakers and those with prior knowledge of Vietnamese should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 3501. Introduction to Korean Civilization. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by the University of Michigan Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 3502. Introduction to Korean History. (3 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 3503. Traditional Korean Poetry: Sijo. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by Rutgers University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 3504. Korean Language in Culture and Society. (3 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Iowa. Received via video conferencing.

Please email the Language Center at elsie@umn.edu for more information.

LANG 3505. Controversies in Contemporary Korea. (3 cr. ; Student Option No Audit; Periodic Spring)
CourseShare course hosted by the University of Michigan. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 3506. The Koreas: Korean War to the 21st Century. (3 cr. ; Student Option; Every Fall)
LANG 3506 - The Koreas: Korean War to the 21st Century is a Big Ten Academic Alliance Korean e-school CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course is received via video conferencing. Korea has always been part and parcel of key trends and phenomena in East Asia and the world. Students who take this course will explore the transformations, the setbacks, and the dynamism that have characterized modern Korean history, with a focus on post-1945 South Korea and North Korea. By exploring society and culture, we will delve into the resilience of Korean people as they lived through a turbulent history marked by national division and the Korean War, Cold War-era development and competition, democratization, and popular memory and nostalgia. Please contact the Language Center at elsie@umn.edu or 612-626-6017 with questions.

LANG 3601. Sami Culture, Yesterday, and Today. (4 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 3651. Islamic Studies Seminar: Rumi, Sufi Poet. (3 cr. ; Student Option; Every Spring)
CourseShare course hosted by Rutgers University through the Digital Islamic Studies Curriculum (DISC). Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 3701. The New Scramble for Africa. (; 3 cr. ; Student Option No Audit; Every Fall)
Online CourseShare course hosted by Rutgers University. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 3751. Holocaust Literature in Translation. (; 3 cr. ; Student Option; Every Fall)
Holocaust Literature in Translation is a Big Ten Academic Alliance CourseShare course. The instructor is at the Rutgers University but you enroll and receive credit for it at the University of Minnesota. This course is received online and has no scheduled meeting times. There is a one-credit additional optional class associated with htis course, LANG 2133, which is by permission only. Contact the Language Center at elsie@umn.edu or 612-626-6017 with questions.

LANG 4111. Beginning Turkish I Grad Research. (4 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 4112. Beginning Turkish II Grad Research. (4 cr. ; Student Option; Every Spring)
Beginning Turkish II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course connects via video conferencing technology, and there is a fixed time and location. It is intended for students who completed Beginning Turkish I. Heritage speakers and those with prior knowledge of Turkish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 4112. Beginning Turkish II Grad Research. (4 cr. ; Student Option; Every Spring)
Beginning Turkish II is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course connects via video conferencing technology, and there is a fixed time and location. It is intended for students who completed Beginning Turkish I. Heritage speakers and those with prior knowledge of Turkish should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 4171. Beginning Aramaic I for Grad Research. (3 cr. ; Student Option; Every Fall & Spring)
CourseShare course hosted by Penn State University. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 5011. Topics in Catalan Study: Representations of Violence. (3 cr. ; Student Option; Every Spring)
Topics in Catalan Study: Representations of Violence is a Big Ten Academic Alliance CourseShare course. The instructor is at Indiana University but you enroll and receive credit for it at the University of Minnesota. This course will be received via video conferencing at a scheduled time. This class is intended for advanced Catalan students and permission is required. Please contact the Language Center at elsie@umn.edu or 612-626-6017 for enrollment assistance.

LANG 5051. Advanced Indonesian III. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 5111. Advanced Turkish and Azeri III. (3 cr. ; Student Option; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 5112. Advanced Turkish and Azeri IV. (3 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Email the CLA Language Center at elsie@umn.edu for more information.

LANG 5121. Advanced Vietnamese III. (3 cr. ; Student Option No Audit; Every Fall)
CourseShare course hosted by the University of Wisconsin-Madison. Received via video conferencing. Please email the Language Center at elsie@umn.edu for more information.

LANG 5122. Advanced Vietnamese IV. (3 cr. ; Student Option; Every Spring)
Advanced Vietnamese IV is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course connects via video conferencing technology, and there is a fixed time and location. It is intended for students who completed Advanced III. Heritage speakers and those with prior knowledge of Vietnamese should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 5123. Advanced Vietnamese V.. (; 3 cr. ; Student Option; Every Fall)
Advanced Vietnamese Directed Study is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Wisconsin-Madison, but you enroll and receive credit for it at the University of Minnesota. This course is received online. It is intended for advanced-level students by permission only. Heritage learners or students with prior experience with Vietnamese should contact the Language Center at elsie@umn.edu or 612-626-6017 for placement assistance.

LANG 5221. Introduction to Middle Egyptian & Hieroglyphics I. (3 cr. ; Student Option No Audit; Every Spring)
CourseShare course hosted by Penn State University. Received via video conferencing. Although there are no prerequisites, previous education in Ancient Egyptian history and civilization is recommended. This course is offered as a basic introduction to that stage in the evolution of the Egyptian language known as "Middle Egyptian" (used as a vernacular c. 2300 - 1700 B.C., and as a "literary" dialect c. 2200 - 1350 B.C.) as revealed and written in the hieroglyphic script. Please email the Language Center at elsie@umn.edu for more information.

LANG 5231. Special Topics in Hebrew Studies: Israeli Innovation and Entrepreneurship. (; 3 cr. ; Student Option; Every Spring)
CourseShare course hosted by the University of Maryland. Fully online course. Grade of at least [C- or S] in HEBR 3012 or instructor consent required. Please email the Language Center at elsie@umn.edu for more information.

LANG 5232. Special Topics in Hebrew Studies: Gender and Identity in Israeli

Culture. (; 3 cr. ; Student Option; Every Spring)
Special Topics in Hebrew Studies: Gender and Identity in Israeli Culture is a Big Ten Academic Alliance CourseShare course. The instructor is at the University of Maryland but you enroll and receive credit for it at the University of Minnesota. It is a fully online course. A grade of at least [C- or S] in HEBR 3012 or instructor consent is required. Please contact the Language Center at elsie@umn.edu or 612-626-6017 for enrollment assistance.

LANG 5651. Islamic Studies Seminar: Rumi, Sufi Poet. (3 cr. ; Student Option; Every Spring)
CourseShare course hosted by Rutgers University through the Digital Islamic Studies Curriculum (DISC). Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

LANG 5702. Development of African Studies. (3 cr. ; Student Option No Audit; Periodic Spring)
CourseShare course hosted by the University of Iliinois. Received via video conferencing. Please email the CLA Language Center at elsie@umn.edu for more information.

Latin (LAT)

LAT 1001. Beginning Latin I. (5 cr. ; Student Option; Every Fall)
Introduction to grammar/vocabulary of classical Latin as written in Rome in 1st centuries BCE/CE. Forms/simple constructions. Some reading of simple, heavily adapted passages from ancient texts.

LAT 1002. Beginning Latin II. (5 cr. ; Student Option; Every Spring)
Continuation of Latin 1001. More complex constructions, including participles, clauses, indirect discourse. Some reading of adapted passages from ancient texts. prereq: Grade of at least C- or S in 1001 or instr consent

LAT 3003. Intermediate Latin Prose. (4 cr. ; Student Option; Every Fall)
Introduction to Latin prose authors of 1st centuries BCE/CE. Readings of continuous passages of unadapted Latin texts (history, speeches, letters). Review of grammar/vocabulary as needed. Some discussion of major themes/issues in Roman culture as illustrated by texts. prereq: Grade of at least C- or S in 1002 or 5001 or instr consent

LAT 3004. Intermediate Latin Poetry. (4 cr. ; Student Option; Every Spring)
Introduction to Roman epic poetry. Readings of selections from Vergil's Aeneid. Quantitative meter and poetic devices. Discussion of major themes and issues as developed in Vergil's poetry.

LAT 3199. Latin AP Credit. (4-8 cr. ; No Grade Associated; Every Fall)
Prereq score of [3 or 4 or 5] on [AP Vergil or AP Latin Literature] exam.

LAT 3993. Directed Studies. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent and dept consent

LAT 4951W. Major Project. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Research project using documents and other sources from the ancient world. Students select project in consultation with a faculty member who directs the research and writing. prereq: [Greek-Latin or Latin major], three 3xxx Latin courses, instr consent, dept consent

LAT 5001. Intensive Latin. (3 cr. ; Student Option; Every Fall)
Covers material usually taught over two semesters. prereq: Prev experience in another foreign language is desirable

LAT 5003. Intermediate Latin Prose for Graduate Student Research. (; 4 cr. ; Student Option; Every Fall)
Introduction to Latin prose authors of 1st centuries BCE/CE. Readings of continuous passages of unadapted Latin texts (history, speeches, letters). Review of grammar/vocabulary as needed. Some discussion of major themes/issues in Roman culture as illustrated by texts. prereq: [Grade of at least [C- or S] in [1002 or 5001] or instr consent]

LAT 5004. Intermediate Latin Poetry for Graduate Research. (; 4 cr. ; Student Option; Every Spring)
Introduction to Roman epic poetry. Readings of selections from Vergil's Aeneid. Quantitative meter and poetic devices. Discussion of major themes and issues as developed in Vergil's poetry. Meets with 3004.

LAT 5100. Advanced Reading. (; 3 cr. [max 18 cr.] ; Student Option; Every Fall & Spring)
Reading in Latin texts/authors. Texts/authors vary. prereq: [3004 or equiv], at least two yrs of college level Latin. Must contact Classical/Near Eastern Studies department for permission to register.

LAT 5200. Advanced Reading in Later Latin. (; 3 cr. [max 18 cr.] ; Student Option; Periodic Fall & Spring)
Authors of late antiquity, Middle Ages, Renaissance. Topics specified in Class Schedule. prereq: [LAT 3004 or equiv], at least two yrs of college level Latin. Must contact Classical and Near Eastern Studies department for permission to register.

LAT 5701. Latin Prose Composition. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Latin grammar, syntax, diction, and prose style. Graduated exercises in prose composition. prereq: Grad student or instr consent

LAT 5703. Epigraphy. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Practical/theoretical introduction to Latin epigraphy (study/interpretation of inscriptions). Readings/discussion of epigraphic texts. Their value as historical documents, as evidence for development of Latin language, and as literary texts. prereq: Grad student or instr consent

LAT 5705. Introduction to the Historical-Comparative Grammar of Greek and Latin. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Historical/comparative grammar of Greek and Latin from proto-Indo-European origins to classical norms. prereq: Two yrs college [Greek or Latin] or instr consent

LAT 5993. Directed Studies. (; 1-4 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent, dept consent

LAT 5994. Directed Research. (; 1-12 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
Guided research on original topic chosen by student. prereq: Grad student or instr consent

LAT 5996. Directed Instruction. (; 1-12 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
Supervised teaching internship. prereq: Grad student or instr consent

Latin American Studies (LAS)

LAS 3401V. Honors Early Latin America to 1825. (GP,WI,HIS; 4 cr. ; A-F only; Every Fall & Spring)
Societies of Americas, Spain, and Portugal before contact. Interactions among Native Americans, African slaves, and Europeans, from colonization through independence. Religion, resistance, labor, gender, race. Primary sources, historical scholarship.

LAS 3401W. Early Latin America to 1825. (GP,WI,HIS; 4 cr. ; A-F or Audit; Every Fall & Spring)
Societies of Americas, Spain, and Portugal before contact. Interactions among Native Americans, African slaves, and Europeans, from colonization through independence. Religion, resistance, labor, gender, race. Primary sources, historical scholarship.

LAS 3402W. Modern Latin America 1825 to Present. (GP,WI,HIS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
National and contemporary period 1825 to present. Social, cultural, political, and economic change.

LAS 3429. Latin American History in Film and Text. (AH,GP; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Cinematic representations of Latin America in the context of other historical and literary narratives. Experiences of Latinos in Hollywood. Compare U.S. films with those produced in Latin America. Specific themes vary by term (e.g., women, revolution, colonialism).

Law School (LAW)

LAW 3000. Introduction to American Law and Legal Reasoning. (3 cr. ; A-F only; Every Fall & Spring)
Law pervades all areas of modern life. Yet it remains mysterious to those without legal training. This course will equip you to better answer such questions by exploring the tools that lawyers use to interpret and apply the law. Students will learn to think like lawyers through a series of contemporary case studies that

require reading, writing, thinking, and problem solving like a lawyer. Cases will be drawn from topics such as contracts, torts, civil procedure, property, business law, criminal law, sports law, privacy, and law and science.

LAW 3050. Law of Business Organizations. (3 cr. ; A-F only; Every Spring)
This course surveys the leading forms of legal business association governing the formation of business entities, including the laws of agency, partnerships, limited liability companies, and corporations. Emphasis is put on the methods lawyers use to interpret statutes and cases.

LAW 5000. Introduction to American Law and Legal Reasoning. (3 cr. ; A-F only; Every Fall)
Law pervades all areas of modern life. Yet it remains mysterious to those without legal training. This course will equip you to better answer such questions by exploring the tools that lawyers use to interpret and apply the law. Students will learn to think like lawyers through a series of contemporary case studies that require reading, writing, thinking, and problem solving like a lawyer. Cases will be drawn from topics such as contracts, torts, civil procedure, property, business law, criminal law, sports law, privacy, and law and science.

LAW 5001. Introduction to the American Legal System. (2 cr. ; A-F only; Every Fall)
This is an introductory course in American law, providing an overview of a wide variety of constitutional, statutory and common law legal issues. A primary focus will be on American constitutional law: legislative, judicial, and executive powers; the legal structure of ?checks and balances? among the three national governmental powers; the distribution of powers between the national government and state governments (federalism); and the constitutional rights of individuals (including rights of free speech, freedom of religion, due process, and equal protection). We will also examine the American system of litigation: the structure of the court system, the jurisdiction of federal (national) and state courts, and the litigation process. We will also address some common law substantive topics in American law including torts and contracts. Students will have the opportunity to learn how to read and interpret American legal materials, to do legal research within the legal system, and to write an analytical legal memorandum.

LAW 5002. MSPL Legal Research and Writing. (1 cr. ; S-N only; Every Fall)
This course covers the process of communicating about the law. Our goal is to teach students the building blocks of legal communication through multiple practice exercises so that students can repeat the process on their own after successful completion of the course. In the fall (one credit), we begin at orientation with a short exercise, then move on to email, letter, and office memorandum exercises written in an objective/predictive mode.

LAW 5025. Patent Law Proseminar. (1 cr. ; S-N only; Every Spring)
The field of patent law extends across the boundaries of business, technology, innovation, and law. In this course, students will be introduced to current topics and compelling issues in patent law presented by leading patent and intellectual property law professionals. Students will gain real-world insights from in-house and private practice attorneys and agents, with a focus on patent prosecution and patent litigation. Open to graduation students, open to undergraduate juniors or seniors with instructor permission

LAW 5026. Intellectual Property and Technology Proseminar. (1 cr. ; S-N only; Every Fall)
The field of intellectual property extends across the boundaries of business, technology, innovation, and law. In this course, students will be introduced to a broad range of IP related topics presented by leading practitioners working at the intersection of law and technology. Topics may include trade secrets, copyrights, trademarks, patents, IP transactions, IP litigation, emerging technologies, intellectual asset management, IP valuation and commercialization. Lecturers may include corporate general counsels, firm lawyers, transactional lawyers, litigators, consultants, tech transfer officers, R&D Leaders, and CTO.

LAW 5050. Law of Business Organizations. (3 cr. ; A-F only; Every Spring)
This course surveys the leading forms of legal business association governing the formation of business entities, including the laws of agency, partnerships, limited liability companies, and corporations. Emphasis is put on the methods lawyers use to interpret statutes and cases.

LAW 5051. Business Associations/ Corporations. (4 cr. ; Student Option; Every Fall & Spring)
The initial part of this course is an introduction to the general law of multi-person unincorporated business organizations, principally partnerships, limited partnerships and limited liability companies. Matters covered include the procedures for forming such organizations and the rights and obligations of the participants as among themselves and with respect to third persons. The remaining class hours constitute the first portion of the basic Corporations course, and will cover such matters as corporate organization; the distribution of powers among the corporate board of directors, its officers and its stockholders; the proxy system; control devices in the close corporation; and the fiduciary duties of directors, officers and controlling shareholders. Matters dealing with ?corporate finance? (issuance of shares, payment of dividends, and corporate reorganizations) are covered in Advanced Corporate Law.

LAW 5061. Financial Regulation. (3 cr. ; Student Option; Periodic Fall & Spring)
This course will be a high-level overview of several different areas of financial regulation: banking regulation, insurance regulation, and elements of securities regulation (particularly broker-dealer and investment company regulation).

LAW 5062. Energy Law. (3 cr. ; Student Option; Periodic Fall & Spring)
This course provides an introduction to US energy law. The first portion of the course introduces the nation's primary sources of energy: coal, oil, biofuels, natural gas, hydropower, nuclear, wind, solar, and geothermal energy. In doing so, it explores the physical, market, and legal structures within which these energy sources are extracted, transported, and converted into energy. The second portion of the course turns to the two major sectors of our energy economy--electricity and transportation--and the full range of federal and state regulation of each sector. The third portion of the course explores case studies of hot topics in energy law and policy that highlight the complex transitions taking place in the energy system. These topics include electric grid modernization, electric vehicles, risks and benefits associated with hydraulic fracturing and deepwater drilling for oil and gas, and the continued role of nuclear energy. In addition to traditional textbook reading and class discussion, the course will include industry, government, and nonprofit guest speaker presentations. Grading will be based on a final exam given at the end of the semester as well as class discussion and weekly written postings on the TWEN site for the course.

LAW 5075. Ethics for Patent Agents. (1 cr. ; A-F only; Every Spring)
This course is designed to provide students with an introduction and understanding of the ethics and rules of professional responsibility and the unauthorized practice of law. Scope: This course covers ethics and professional responsibility for lawyers, ethics and professional responsibility for patent agents and patent attorney?s and the unauthorized practice of law. Goals: This course will provide students with the framework that will guide their actions and conduct as future patent professionals by introducing them to various scenarios that they are likely to encounter in their professional career. By the end of the course, students will understand the principles behind the ethics and rules of professional responsibility and the unauthorized practice of law as it applies to nonlawyers. prereq: Master of Science Patent Law Students.

LAW 5076. Essentials of Business for Lawyers. (3 cr. ; Student Option; Every Fall & Spring)
This course will teach you how to: (1) Understand basic accounting principles; (2) Read an annual report and analyze financial statements; (3) Look beyond numbers to gauge the financial performance and strength of an entity; (4) Employ cash flow analysis to value a business or determine the potential financial rewards of an investment opportunity; and (5) Understand the strategic questions that business managers must confront in governing their companies. The course surveys foundational concepts, analytical techniques and practices related to finance, accounting and strategic management issues lawyers confront when working with business executives either as an outside consulting

attorney or as an inside corporate counsel. It may also consider other concepts used by business executives, including organizational behavior, marketing and quantitative analysis. The aim of the course is to help law students better appreciate the broader business context of legal decision-making so that they can contribute more effectively as a member of a firm?s top management team or as outside counsel.

LAW 5078. Legislation and Regulation. (3 cr. ; Student Option; Every Fall)
This course explores lawmaking in the administrative state. Topics include: the legislative process, delegation of legislative authority to administrative agencies, the rulemaking process, statutory interpretation by courts and agencies, and judicial review of agency decisions. The course will focus on how statutes structure and constrain judicial and administrative decisionmaking.

LAW 5100. Taxation I. (3 cr. ; A-F only; Periodic Fall & Spring)
This basic course in federal income taxation introduces the student to the Internal Revenue Code and the income taxation of individuals through the following topics: definition of income, relevant accounting concepts, exclusions, deductions, income splitting, sales and dispositions of property, amortization, capital losses, and current issues of tax policy.

LAW 5102. Mergers and Acquistions. (3 cr. ; Student Option; Every Fall)
This class will cover the theory behind, the Federal and state law governing, and the practice of, mergers and acquisitions. Our main focus will be what a transactional lawyer would want and need to know as to why mergers and acquisitions might occur and how and why companies or shareholders would embrace or disfavor them, how the transactions are documented and how disclosure requirements are met, and what the present cases say.

LAW 5103. Data Privacy Law. (3 cr. ; A-F only; Periodic Fall & Spring)
Every single day, the newspaper contains stories?plural intended?about data privacy and security. Whether they concern the National Security Agency, Facebook, or a data breach at a small business, the handling of personal information has become a central concern of our time. In response, a complex law of data privacy has emerged, and now it is a fast growing area of legal practice. This course will equip students to counsel clients about an array of federal, state, and international legal requirements?while also analyzing them critically and thinking about the societal challenges posed by new information technology. Assessment will include group projects and a take-home final.

LAW 5127. Patent Drafting and Oral Advocacy Competition Team. (1 cr. [max 2 cr.] ; A-F only; Every Fall)
This competition team furthers students' research, writing, and oral advocacy using a patent invention disclosure. The focus is on patent searching, patent drafting, and oral advocacy. The writing component is a simulation of the real-world patent prosecution environment where a junior lawyer or patent agent prepares a patent application for review by a patent examiner. The competition team is open to 16 students, who will compete in a local competition and defend their patent application before a panel of judges. One (1) to three (3) of the students will be selected to compete for the annual International Patent Drafting Competition held at the Elijah J. McCoy Midwest Regional U.S. Patent & Trademark Office to defend the team patent application before of a panel of patent examiners and judges. Prereq or co-req one of the following: Law 5224 Patents, Law 5231 Patent Prosecution I, Law 5243 Patent Research & Writing, or Director of Patent Law Programs permission.

LAW 5211. Federal Securities Regulation. (3 cr. ; Student Option; Every Spring)
This course covers concepts and problems in the regulation of securities transactions under the Securities Act of 1933, the basic federal statute governing rights, duties, and remedies in connection with the financing of business operations through the distribution of securities to the public. Topics covered will include the definition of a security and the exemptions from federal registration (crucial knowledge for the small business advisor), the registration process, the contents of the prospectus, civil liabilities, and the applicability of the 1933 Act to secondary transactions (sales of securities by persons other than the issuing entity). Because of the expansive scope of federal securities law and the draconian nature of the penalties imposed even for 'innocent' violations, knowledge of this material is vital not only for business lawyers who advise large corporations but also those whose business clients are closely held. The course will not focus, however, on litigation strategy or technique. Classes are problem-oriented.

LAW 5214. Insurance Law. (3 cr. ; Student Option; Every Fall)
Insurance is omnipresent in the practice of law because insurance is the primary means by which companies and individuals deal with risks. Lawyers, of course, often make a living either by counseling clients about how to plan for risks or by serving clients whose risks have developed into losses. This course will introduce students to fundamental principles of insurance law and regulation. It will survey the nature and function of insurance, insurance contract formation and meanings, and insurance regulation. We will also look at specific legal issues relating to different lines of insurance, such as property, life, health, and liability insurance.

LAW 5224. Patents. (3 cr. ; A-F only; Every Fall)
This course offers an overview of patent law, both for students intending to specialize in patent prosecution and those whose general practice may include patent litigation and licensing. Topics to be covered include patentable subject matter; novelty, utility, and nonobviousness; statutory bars; enablement and written description; direct and vicarious patent infringement; claim interpretation; and administrative review of patent validity.

LAW 5231. Patent Prosecution Practice I. (2 cr. ; A-F only; Every Fall)
Patent Prosecution Practice I is recommended for all students interested in intellectual property and patent law, including students considering practicing in the areas of patent prosecution, litigation, licensing, technology commercialization, and patent portfolio management. The course focuses on US patent practice and is designed to extensively develop the student's skills. Throughout the semester each student will complete two projects: (1) formulate and draft patent claims for a number of different inventions in view of prior art, (2) develop strategies for responding to a patent examiner according to rules of the U.S. Patent Office, arguing patentability and allowance of a patent application over cited prior art. Each student will be paired with a senior practicing attorney who will act as a mentor, including reviewing drafts and providing candid feedback to the student. Lectures and discussion topics include: -Organization and structure of the U.S. Patent Office, -The US patent process including the entire life cycle of a patent from application preparation and filing through examination and grant, -Formulating patent claims in view of prior art and potential infringers, -Architecting patent portfolios including all types of US patent applications, such as provisionals, utilities, continuations and divisionals, -Examination of patent applications including responding to Office Actions issued by the US Patent Office; -Inventorship and ownership determination and legal ramifications flowing therefrom, and -US law and regulations governing patent prosecution practice. A technical background is not required to take this course.

LAW 5232. Patent Prosecution Practice II. (3 cr. ; A-F only; Every Spring)
Patent Prosecution Practice II is recommended for all students interested in intellectual property and, in particular, students interested in advancing their skills and understanding of patent law and practice. Throughout the semester each student will complete three practical and diverse assignments designed to develop the student's skills. Each student will be paired with a senior practicing attorney who will act as a mentor, including reviewing drafts and providing candid feedback to the student. Specifically, in this class, each student will: (1) prepare a complete US Patent Application based on a real invention, (2) write an appeal brief according to rules of the US Patent Trial and Appeal Board, arguing patentability and reversal of the patent examiner in view of an examination history by the US Patent Office, and (3) provide clearance counseling to a client about to launch a new product, including reviewing issued US patents and developing a full non-infringement / invalidity opinion for the client. The course grade is primarily based on these three projects in lieu of a final exam. Lectures and discussion topics throughout the semester include: -skills and strategies for writing patent applications, -

appeal practice including brief writing before the Patent Trial and Appeals Board (PTAB) at the US Patent Office, -clearance analysis including invalidity and non-infringement counseling and opinions, -foreign practice including national filings in foreign countries and international filings using the Patent Cooperation Treaty (PCT), including leveraging patent prosecution highways for accelerated examination, -eligible subject matter issues including recent case law and claim drafting tips, -accelerated examination procedures within the US Patent and Trademark Office, -legal and practical considerations of infringement counseling including formulating invalidity and non-infringement opinions, -post grant review and other mechanisms for challenging issued patents before the US Patent and Trademark Office, -patent prosecution related considerations that arise in relation to participation in industry standards organizations, -patent prosecution related considerations that arise in the context of universities and technology licensing organizations, and -design patents. prereq: Master of Science Patent Law Students only.

LAW 5243. Patent Research and Writing. (2 cr. ; A-F only; Every Fall)
Patent lawyers and agents spend their entire professional careers communicating (with clients, patent examiners, judges, colleagues) no matter what their individual career paths may be. This course is about the process of research and communicating about patents. In other words, the goal of the course is to teach the building blocks of patent research and communication through multiple practice exercises so the student may repeat the process independently after successful completion of this course. This course leverages free, patent office, and commercial research tools. Deliverables and works include: patent landscape search and report, patentability search and opinion, patent risk search and assessment, patent invalidity search and opinion. Recommended prereq: Patents (5224), Patent Prosecution Practice I (5231) or Patent Portfolio Management (5250)

LAW 5250. Patent Portfolio Management. (2 cr. ; A-F only; Every Fall)
Patent portfolio management is the art of aligning patent strategy with business objectives. In general, the successful portfolio manager must have the ability to transform complex patent information into actionable insights that provide decision-making value to a wide variety of stakeholders. This course introduces students to the various practices and skills that go into building, implementing, and managing a patent portfolio whether from the point of view of a small, innovative, start-up company or a Fortune 500 company in a highly competitive market space.

LAW 5290. Patent Law Capstone: Innovation. (3 cr. ; A-F only; Every Spring)
This capstone course introduces students to the principles of successful innovation and the integral role of patents in this process. This is a course in innovation. There are no right or wrong answers. Large companies with very smart people often launch products that fail. Venture capitalists seeking to invest in winners more-often-than-not end up investing in losers. Innovation is an art not a science. There is no ?secret formula? that guarantees success. There are simply different tools, skills, methods of analysis and approaches that may or may not work better than others. We will explore the art of innovation and the integral role that patents play in turning an idea into an innovation. Goals: Students will learn how to research complex subject matter across the intersecting domains of business, finance, marketing, science, technology and intellectual property. Students will then develop the ability to present their findings in a clear and concise manner that is understandable to and can be acted upon by a cross-functional audience of high-level decision makers.

LAW 5601. International Business Transactions. (3 cr. ; Student Option; Periodic Fall & Spring)
International Business Transactions is a three-credit course whose main focus of discussion and study is the private law aspects pertaining to international business transactions, rather than issues of national and international trade regulation. Thus, the course is primarily concerned with private international business law. We examine three basic methods of doing business abroad, namely, the sales of goods (export) transaction, licensing and franchising, and foreign direct investment. The course materials touch upon substantive law in areas as diverse as commercial transactions and the uniform commercial code, antitrust, intellectual property, conflict of laws, civil procedure, contracts, bankruptcy, taxation, and international law. While knowledge or background in these areas is certainly helpful it is not necessary for success in the course and for dealing with the issues raised in the readings or in class.

LAW 5608. Trademarks. (3 cr. ; Student Option; Periodic Fall & Spring)
This course will consider how marketers secure and enforce trademark rights. Trademarks are the indicators that consumers rely upon to determine the origin of goods and services. The course will focus on U.S. federal trademark law, but will also look at state and international trademark law as well as related areas such as false advertising, publicity rights, and cybersquatting. This course will provide a solid foundation for students interested in practicing trademark law (application, enforcement, licensing, or litigation) or more general intellectual property law. It will also be useful to attorneys who do any work with trademark-dependent industries such as retail sales, advertising, or media and entertainment. Finally and more generally, trademark law offers excellent case studies of the interaction between law, culture, and technology, and of the evolution of traditional doctrine under pressure from rapid changes in surrounding circumstances.

LAW 5613. Copyright. (3 cr. ; Student Option; Periodic Fall & Spring)
Copyright subsists in original works of authorship, including literary works, music, and works of visual art. This course provides an overview of U.S. copyright law, including the requirements for copyright protection; authorship and ownership; copyright owner rights; exceptions to copyright liability, including the fair use doctrine; and duration and terminations of transfer.

LAW 5629. Patent Field Placement. (1-3 cr. ; S-N only; Every Fall, Spring & Summer)
This course provides an opportunity for students to work with and learn from lawyers and patent professionals in industry and law firms. The instructor and student will work together to find an appropriate placement that matches the student's interests and host's needs. Enrollment occurs through an application outside of the lottery process. If you are interested in participating, please contact the instructor by email as early as possible with a short explanation of: (1) why you are interested in pursuing a patent field placement; (2) the kind of work that interests you; and (3) whether you have an interest in and/or relationships with a specific potential host organization. Prereq or co-req one of the following: Law 5224 Patents, Law 5231 Patent Prosecution I, Law 5243 Patent Research & Writing, or Director of Patent Law Programs permission.

LAW 5707. Intellectual Property Transactions. (2 cr. ; A-F only; Every Spring)
Intellectual property rights have been described as a sword and shield. Rights holders are thought to act offensively by suing or threatening to sue infringers and seeking money damages, irrespective of the holders marketing and product sales programs. Or they act defensively to protect their current or future market positions by having federal courts enjoin competitors. This course considers a third way: intellectual property rights are also valuable intangible assets that may be bought and sold. In this course, we will explore the principal theories and practices of intellectual property transactions. We will be considering closely the doctrines regulating the assigning and licensing of patent, copyright, trademark and other intellectual property rights, and we will be questioning critically whether these laws and practices encourage or inhibit commercial activity and innovation. While studying specific transactions in the course, we will be examining the practical uses of intellectual property law to meet commercial objectives.

LAW 5836. Trade Secret Law. (2 cr. ; Student Option; Every Spring)
This course is an exploration of perhaps the least studied of the legal regimes protecting commercially valuable information, trade secret law. Patents and copyrights receive considerably more attention, at least as studied disciplines. But the importance of trade secrets and laws protecting them are no less important, and increasingly businesses are recognizing this reality. The focus of this course will be the ways trade secrets come to exist, how they are used, and how they can be protected, and the enforcement mechanisms used to achieve that protection. We will explore the

sources of state-based trade secret law, the common law and statutes, and seek an understanding of relevant federal law and the interplay of state and federal law. Because a true understanding of trade secrets only can be obtained by understanding their relation to and differences from inventions covered by patents, we also will make sure to contrast these regimes throughout the course.

LAW 5908. Independent Research and Writing. (1-2 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Students may earn 1 or 2 credits (and in exceptional circumstances, 3 credits) for researching and writing a note, article, memo, or other paper on a legal topic. At least 3,750 words are required for one credit, at least 7,500 for two credits, and at least 11,250 for three credits. To register, the student should confer with a supervising faculty member, draft a description of the proposed project, and complete the online Independent Research form. LAW 5908 is for students who are not enrolled in the Law School, as well as MSPL candidates. Other law school degree candidates should enroll in LAW 7606 or LAW 7608 instead of LAW 5908.

LAW 5909. Independent Field Placement. (1-3 cr. ; S-N only; Every Fall, Spring & Summer)
Students may earn up to three credits in a semester for work in a patent practice setting under the supervision of a qualified field supervisor and a faculty advisor. At least 50 hours of patent-related activities are required per credit. The student is responsible for identifying a field placement setting and supervisor, finding a faculty advisor, and submitting the Independent Field Placement Enrollment Form for approval by the Associate Dean of Academic Affairs prior to enrollment.

Leadership Education (LEAD)

LEAD 1961W. Personal Leadership in the University. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Examine personal views of leadership, differences between personal/positional leadership, leadership ethics/values, personal leadership strengths/skills.

LEAD 3961. Leadership, You, and Your Community. (; 3 cr. ; A-F only; Every Fall & Spring)
How do effective leaders create positive systemic change within complex systems? What is community and how does it shape the work of leadership? Students examine leadership from a multi-dimensional and multicultural perspective and critically examine leadership theories in authentic, complex community settings.

LEAD 3971. Leadership Minor: Field Experience. (; 3 cr. ; A-F only; Every Fall & Spring)
Students apply and integrate leadership theory in a community experience, think critically about their positional leadership roles, extrapolate the experience to future leadership issues within their specific fields, and work through challenges of positional leadership.

LEAD 3972. Field Experience: Intercultural Internship. (; 3 cr. ; A-F only; Every Summer)
Internship-based course focused on leadership principles and intercultural values that impact the work environment. Possible internship locations include New York City, San Francisco, and Minneapolis. For students in the undergraduate Leadership Minor, this is the opportunity to apply what they have learned in a real-life setting. Prior to departure for the on-site internship in the city location, students spend a week in class at the University studying the theoretical frameworks that will provide the foundation for the 6-week internship, reflection process, and living experience. The composition of the class cohort will include international and domestic students, which provides the opportunity to experience and reflect upon the internship and the designated city living experience through an intercultural lens. Upon completion of the internship, the class cohort will return to the University to complete a final week of class on campus.

LEAD 4481. Leadership and Social Change in Ireland. (GP; 3 cr. ; A-F only; Spring Even Year)
Learn how ordinary individuals and communities can inspire, mobilize, and engage with others to make a difference and to tackle what might appear to be an impossible public problem. The city of Belfast, Northern Ireland will provide a rich context for students to learn about the role that ordinary citizens, informal leaders, and public officials played in facilitating a reconciliation of a long-standing conflict (The Troubles), which still remains ever present. Despite public perception that Northern Ireland has moved forward from the Troubles, more walls have gone up since the peace agreement was signed, and there is still significant segregation between Protestants and Catholics. Learn how ordinary individuals and communities can inspire, mobilize, and engage with others to make a difference and to tackle what might appear to be an impossible public problem. The city of Belfast, Northern Ireland will provide a rich context for students to learn about the role that ordinary citizens, informal leaders, and public officials played in facilitating a reconciliation of a long-standing conflict (The Troubles), which still remains ever present. Despite public perception that Northern Ireland has moved forward from the Troubles, more walls have gone up since the peace agreement was signed, and there is still significant segregation between Protestants and Catholics. In addition to analyzing leadership and social change in the context of Ireland, students will simultaneously reflect on their own capacities for leadership and cultural competence, and the role that they might play in a social issue when they return to the US.

LEAD 4482. Leadership and Social Change in Panama. (GP; 3 cr. ; A-F only; Every Fall)
On the surface, Isla Bastimentos is a beautiful island, located in a marine park near the Costa Rican border with picturesque beaches including Red Frog Beach. But under the surface, there is a complex story. Students will learn about leadership and social change by examining the local commitment to eco-tourism and biodiversity, indigenous communities that inhabit the island, local organizations started by ordinary individuals that are trying to fulfill community needs, and the real-life story of the journey to build the Red Frog Beach Resort. In addition to analyzing leadership and social change in the context of Isla Bastimentos and Bocas Del Toro, Panama, students will simultaneously reflect on their own capacities for leadership and cultural competence, and the role that they might play in a social issue when they return to the U.S.

LEAD 4483. Leadership in South Africa: From Townships to Urban Centers. (3 cr. ; A-F only; Every Summer)
During pre-departure meetings and the first week in Cape Town, students will begin the journey of discovering the context of South Africa. Through readings, movies, and discussions about South Africa?s history and current events, as well as by visiting various significant sights and geographical points in the Cape Town area, students will gain a sense of understanding of where they are, why it is the way it is, and what they can look forward to for the remainder of the course. During the second week, students will live, volunteer, observe, and interact with the communities of Gugulethu and Mitchell?s Plain. During this process, there will be opportunity to deepen understanding and perspectives about the cultural context of South Africa while deepening our immersion in the community through volunteer projects, meaning dialogue with local community members, youth, and leaders, and through living with a local family for the week. During the final week in South Africa, students will return to the University of Cape Town area to live and learn about the many complex and noteworthy experiences that have been generated thus far in the experience. Significant amount of time and energy will be given to creating meaningful conversation as a classroom community about all of the experiences in the course through the lens of leadership. Participants will leave with a deepening understanding of their own leadership lens from different cultural contexts.

LEAD 4484. Cross-Cultural Leadership Bali. (3 cr. [max 9 cr.] ; A-F only; Every Summer)
This 4000-level study abroad course explores leadership development as related to global citizenship. It is designed for students who are interested in exploring topics and themes of leadership, globalization and happiness in a different cultural context. Specifically, this course will take students to Bali, Indonesia, and utilize the history, sites, people and agencies of Tabanan, Ubud, Sanur, and Denpasar, to explore and learn about those communities as well as how culture affects leadership and the social constructs of happiness. Students will use their knowledge of leadership?particularly the notions of community, intercultural leadership, and social constructs of happiness? to examine the current opportunities and

challenges the Balinese face. Students will interact with local community leaders who are working to make change, as well as citizens in the community. In this course, students will: 1. Understand the ways in which different cultural norms and values can change the manner in which leadership skills and initiatives are utilized to create change. 2. Explore the role that particular social, environmental, and spiritual belief systems can play in the practice of community leadership. 3. Gain knowledge about global issues in Bali and, more specifically, how different individuals can use their experiences, knowledge, and practice to make a difference. 4. Continue personal development growth through awareness of the history of Bali, as well as the cultural context of Tabanan, Ubud, Bedulu, and Denpasar, its people, and its surrounding areas. 5. Explore the intersections of culture and happiness in the Balinese context and contrast that with their own cultural understanding of happiness.

LEAD 4961W. Leadership for Global Citizenship. (GP,WI; 3 cr. ; A-F only; Every Fall & Spring)
In this final, writing intensive capstone course, students pull together the threads of leadership theory and practice worked with over the course of the Leadership Minor. In addition, students gain experience working with diverse leaders from around the world, mapping political contexts, and planning their own global leadership path within their specific field.

LEAD 4971. Directed Study, Leadership Minor. (1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Design/carry out study project under direction of leadership minor instructors/faculty. To apply, please create a contract here: https://goo.gl/forms/K8s9ZhrY6Vp5oRGf2 Please note: The UMN's Credit policy can be found here: https://policy.umn.edu/education/studentwork. One credit represents, for the average University undergraduate student, three hours of academic work per week, averaged over the semester, in order to complete the work of the course to achieve an average grade. One credit equals 42 to 45 hours of work over the course of the semester (1 credit x 3 hours of work per week x 14 or 15 weeks in a semester equals 42 to 45 hours of academic work). Students should keep the above policy in mind while determining their project and the amount of credits for enrollment. The amount of enrolled credits also proportionally influences the amount of instructor contact hours/week.

LEAD 4972. Directed Research, Leadership Minor. (1-4 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Students complete individually arranged research project with Leadership Minor instructor. Contact Leadership Minor office for registration requirements. *Please note - The University of Minnesota's Credit policy can be found here: https://policy.umn.edu/education/studentwork. One credit represents, for the average University undergraduate student, three hours of academic work per week, averaged over the semester, in order to complete the work of the course to achieve an average grade. One credit equals 42 to 45 hours of work over the course of the semester (1 credit x 3 hours of work per week x 14 or 15 weeks in a semester equals 42 to 45 hours of academic work). Students should keep the above policy in mind while determining their project and the amount of credits for enrollment. The amount of enrolled credits also proportionally influences the amount of instructor contact hours/week. prereq: instr consent Contract URL: https://goo.gl/forms/iw89wCSrPN30HbAz2

Learning and Academic Skills (LASK)

LASK 1001. Mastering Skills for College Success. (; 2 cr. ; Student Option; Every Fall & Spring)
Practical assistance to students in developing efficient and effective learning and academic performance skills, improving reading speed and comprehension, increasing memorization and test-taking skills, managing test anxiety, identifying academic and career goals, and using advanced technology in university learning. Students identify individual academic strengths and weaknesses and formulate a plan for skill development through individualized learning projects. Addresses student learning styles, attitudes and motivations and their relation to successful academic performance. Class focuses on transition to college, a good option for first year, transfer, international, and returning students.

LASK 1101. Academic Refresher. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Identifying factors interfering with academic performance, selecting strategies, and establishing a plan to promote academic success. Learning-style, educational goals, life management skills, motivation, attitude. Class intended to support students who are experiencing academic barriers during the first half of the semester. prereq: instr consent

LASK 1102. Academic Success. (; 2 cr. [max 4 cr.] ; S-N only; Every Fall & Spring)
Assistance in identifying barriers in academic performance and developing plans for effective scholarship. Skill development, performance enhancement. Objectives achieved through didactic instruction, assignments, behavioral monitoring. Course designed for students who are on academic probation, returning from suspension, or have experienced significant academic barriers.

Liberal Studies (LS)

LS 5100. Liberal Studies Seminar. (; 1-4 cr. [max 96 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Interdisciplinary topics. prereq: dept consent

LS 5125. Field Experience. (; 1-8 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Off-campus observation, experience, and evaluation in interdisciplinary field of study. prereq: MLS student or instr consent

LS 5950. Special Topics. (; 1-4 cr. [max 12 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Interdisciplinary topics. prereq: dept consent

LS 5993. Directed Studies. (1-4 cr. [max 15 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: Grad student, dept consent

LS 5994. Directed Research. (1-4 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
Tutorial for qualified graduate students. prereq: instr consent

Linguistics (LING)

LING 1701. Language and Society. (DSJ; 4 cr. ; Student Option; Every Fall & Spring)
Role of language in human social interaction; linguistic indicators of social status and attitudes; language and sex roles; linguistic ecology; language planning for multilingual communities; implications for education and public policy.

LING 1705W. World Englishes: The Linguistics of English-based varieties around the globe. (GP,WI,SOCS; 4 cr. ; Student Option; Periodic Fall & Spring)
In this course, we will explore the linguistic questions that arise concerning the many varieties of English that are spoken around the globe. Our overarching concern will be what we can learn about humans and the human mind by studying the variation found across English varieties. Our investigation will focus on three primary threads of linguistic research: methods of data collection and analysis, tools of formal grammatical analysis, and critical analysis of sociopolitical contexts of language use. By approaching the global landscape of Englishes and English-based creoles in this way, we will tackle a number of questions, including: Who is a native speaker? What is a standard? What value judgments do people ascribe to different varieties of English? What sorts of (linguistic and extra-linguistic) relationships exist between different varieties of English and their speakers? What role does English play in an increasingly globalized world? How has its role changed over time and from place to place? Through this course, students will gain an understanding of how English is situated in the global linguistic landscape, an ability to critically read linguistics articles and other media relating to language use, experience in analyzing linguistic data to understand patterns and variation, and an ability to communicate their findings and analyses effectively.

LING 1800. Topics in Linguistics. (; 1-4 cr. [max 20 cr.] ; Student Option; Periodic Fall & Spring)
Topics vary. See Class Schedule.

LING 1912. Invented Languages. (; 3 cr. ; A-F only; Every Spring)
As far back as we can tell, there have been thousands of natural languages spoken by humans the world over?7,102 today, according to a recent authoritative count. So why are there also hundreds and hundreds of invented

languages? What niche are they intended to fill? And why did so few of them make it out of the works of their inventors? In this seminar we will approach these questions by looking at languages invented by philosophical taxonomists during the Enlightenment, by internationalists in the late 1800s, by simulationists in the 1900s; we will take a look at online communities of language inventors to understand what makes them tick, and see how invented languages and their inventors are portrayed in the media. To get the most out of all this we will also have to talk about the properties of natural languages: how they are structured, how they are used, how they change over time, and why there are so many of them.

LING 1913. Words at Work. (; 3 cr. ; A-F only; Every Fall)
This course is a guided tour through the vocabulary of English, one of the largest and most varied in any of the world's languages. Among the questions it will address are: Why does English have so many (and so many different kinds of) words? Where did these words come from? Why do they mean what they mean? How are they put together? What do they tell us about history, social organization, culture and human psychology? One practical advantage of learning the answers to these and other questions is that it helps in vocabulary building and in demystifying specialized and technical terminology. The course is also a portal into linguistics, the study of the nature of language.

LING 3001. Introduction to Linguistics. (SOCS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
The ability to acquire and use language is a biological trait of the human species. This capacity for language manifests itself as thousands of particular languages spoken around the world in communities large and small. But what is language? What does it mean for a human to ?know? a particular language? How do children acquire this knowledge? How do we use language to communicate? These are some of the important questions addressed by the field of linguistics, the scientific study of the human capacity for language in its physiological, cognitive, historical, and social manifestations. This course introduces some of the essential findings of linguistics: first and foremost, that all varieties of all languages are intricately structured at multiple distinct but related levels. Second, that this intricate structure can be described in terms that are not only precise, but which apply to all human languages. We will work to replicate some of these findings by deploying simple analytical methods on data from a variety of languages. These methods allow us to answer questions about the different structural components of language: phonology (how do speech sounds pattern?), morphology (what are possible words and how are they built?), and syntax (what is the hierarchical structure underlying sequences of words?). In all instances these methods require that we pay attention to basic notions of semantics, from which more complex conceptions of meaning will emerge. Having characterized language as an intricately-structured system of knowledge, we will then possess the tools to ask a number of additional questions about language and cognition. How does such complex knowledge play into the actual task of sentence production or comprehension? What do we know about the neural implementation of this knowledge in human brains? How does child language acquisition proceed, and what makes it so much more robust than language acquisition later in life? Do animals have languages of their own? Can they learn human languages? Finally, we will turn our attention to variation in language patterns observed over the passage of time, across geographical space, and within social systems. How and why do languages change over historical time? What can we know about languages spoken before the invention of writing? What distinctions exist between languages spoken in different places, and how can we tell whether similarities are due to genealogical relationships? How do new languages emerge? How do languages disappear? How does language use vary between individuals from the same place or the same community? How do socioeconomic class, ethnicity, and gender relate to the linguistic behavior of individuals? How does language policy affect educational outcomes? What about social cohesion and conflict? Although we will find that most of these questions lack definitive answers, we will develop an understanding of what it takes to ask them meaningfully and precisely. In particular, we will be able to eliminate false or misleading answers, especially when they fail to take into account the observable and describable properties of the human capacity for language.

LING 3001H. Honors: Introduction to Linguistics. (SOCS; 4 cr. ; A-F only; Every Spring)
Scientific study of human language. Methods, questions, findings, and perspectives of modern linguistics. Components of the language system (phonetics/phonology, syntax, semantics/pragmatics); language acquisition; language and social variables; language and cognition; language change; language processing; language and public policy. prereq: Honors student or instr consent

LING 3051H. Honors: Thesis. (; 3 cr. ; A-F only; Every Fall & Spring)
Supervised planning and research for honors thesis to be completed in 3052. prereq: Linguistics honors candidate, instr consent

LING 3052V. Honors: Thesis. (WI; 3 cr. ; A-F only; Every Spring)
Supervised research, writing, and revision for honors thesis begun in LING 3051H.

LING 3101W. Languages of the World. (WI; 3 cr. ; Student Option; Every Fall)
Survey of language families of the world. Classifying languages genetically/typologically. Historical relationships among languages. prereq: 3001 or 3001H or 5001 or instr consent

LING 3601. Historical Linguistics. (; 3 cr. ; Student Option; Every Spring)
Historical change in phonology, syntax, semantics, and lexicon. Linguistic reconstruction. Genetic relationship among languages. prereq: 3001 or instr consent

LING 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

LING 3900. Topics in Linguistics. (; 3 cr. [max 15 cr.] ; Student Option; Periodic Fall & Spring)
Topics vary. See Class Schedule.

LING 4201. Syntax I. (; 3 cr. ; Student Option; Every Spring)
How words are organized into phrases/ sentences. Basic units of a sentence. How these units are structured. How languages may be the same, or different, in syntax. prereq: 3001 or 3001H or 5001 or instr consent

LING 4202. Syntax II. (; 3 cr. ; Student Option; Every Fall)
Syntactic theory. Principles and Parameters (P&P) approach to grammar. Focuses on Minimalist Program (MP). prereq: 4201 or 5201

LING 4302W. Phonology I. (WI; 3 cr. ; Student Option; Every Spring)
How sounds are organized/patterned in human languages. Foundation in phonological theory/problem-solving for advanced work in phonology and other fields in linguistics. Analyzing data, presenting written solutions. prereq: 3001 or 3001H or 5001 or instr consent

LING 4303. Phonology II. (; 3 cr. ; Student Option; Every Fall)
Continues work of LING 4302W with emphasis on critical reading of current phonological literature. Phonological phenomena in the context of new developments in the field. Optimality Theory and the phonology-morphology interface. prereq: Ling 4302W

LING 4901W. Capstone Seminar in Linguistics. (WI; 3 cr. ; S-N only; Every Fall & Spring)
Revision/expansion of a paper completed for a linguistics course. prereq: Ling major, [jr or sr]

LING 5001. Introduction to Linguistics. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Scientific study of human language. Methods, questions, findings, and perspectives of modern linguistics. Components of the language system (phonetics/phonology, syntax, semantics/pragmatics); language

acquisition; language and social variables; language and cognition; language change; language processing; language and public policy; language and cognition.

LING 5105. Field Methods in Linguistics I. (; 4 cr. ; Student Option; Every Fall)
Techniques for obtaining/analyzing linguistic data from unfamiliar languages through direct interaction with native speaker. prereq: [[4201 or 5201], [4302W or 5302]] or instr consent

LING 5106. Field Methods in Linguistics II. (4 cr. ; Student Option; Every Spring)
Techniques for obtaining/analyzing linguistic data from unfamiliar languages through direct interaction with a native speaker. prereq: [5105, grad major] or instr consent

LING 5201. Syntactic Theory I. (3 cr. ; Student Option; Every Fall)
Concepts/issues in current syntactic theory. prereq: 5001 or honors student or instr consent

LING 5202. Syntactic Theory II. (3 cr. ; Student Option; Every Spring)
Modern syntactic theory. Syntactic phenomena in various languages. Syntactic argumentation, development of constraints on grammar formalisms. prereq: 5201 or instructor consent. LING 5201 is directed towards honors students and graduate students.

LING 5205. Semantics. (; 3 cr. ; Student Option; Every Fall & Spring)
Analysis of sentence meaning. Semantic properties. Relations such as analyticity, entailment, quantification, and genericity. Philosophical background, formal techniques of semantic analysis, how sentence meaning depends on word meaning, syntax, and context. The role of semantics in grammatical theory. prereq: [4201 or 5201] or instr consent

LING 5206. Linguistic Pragmatics. (; 3 cr. ; Student Option; Every Spring)
Analysis of linguistic phenomena in relation to beliefs and intentions of language users; speech act theory, conversational implicature, presupposition, information structure, relevance theory, discourse coherence. prereq: [4201 or 5201] or instr consent

LING 5207. Advanced Semantics. (3 cr. ; A-F only; Every Fall)
In this course, we will explore some semi-advanced to advanced topics in the field of natural language semantics. Broadly construed, natural language semanticists study how human beings process complexity in meaning in language, with the building blocks being how small units of meaning compose together to form larger and larger units, all of which are produced and understood in milliseconds. Building on the fundamental foundations of semantic theory learnt in Semantics, Advanced Semantics is geared towards providing expansive knowledge on several vital topics that current vibrant research in the field is concerned with. The array of topics include quantifier scope, definiteness and indefiniteness, plurals and mass/count nouns, attitude predicates and attitude ascription, event semantics, tense and aspect, modality and conditionals, questions, focus and alternative semantics, and imperatives. As we make our way through the critical last few decades of formal semantics through these vast and diverse topics, we will balance empirical coverage and formalism with development of intuition and methodology. Prerequisites: LING 5205 - Semantics I

LING 5302. Phonological Theory I. (3 cr. ; Student Option; Every Fall)
How sounds are organized/patterned in human languages. Phonological theory/problem-solving for advanced work in in linguistics. Analyzing data. Presenting written solutions to problem sets. prereq: 5001 or honors student or instructor consent. LING 5302 is directed towards honors students and graduate students.

LING 5303. Phonological Theory II. (3 cr. ; Student Option; Every Spring)
Phonology of human languages. Reading papers in the literature. Doing research in phonology. prereq: 5302 or instr consent. LING 5303 is directed towards honors and graduate students.

LING 5461. Conversation Analysis. (; 3 cr. ; Student Option; Periodic Fall)
Discourse processes. Application of concepts through conversation analysis. prereq: 3001 or 3001H or 5001 or instr consent

LING 5462. Field Research in Spoken Language. (; 3 cr. ; Student Option; Periodic Spring)
Transcribing/analyzing talk and movement related to talk. Applying concepts to recorded conversations. prereq: 3001 or 3001H or 5001 or instr consent

LING 5601. Historical Linguistics. (; 3 cr. ; Student Option; Every Spring)
Historical change in phonology, syntax, semantics, and lexicon. Linguistic reconstruction. Genetic relationship among languages. prereq: 3001 or 3011H or 5001

LING 5801. Introduction to Computational Linguistics. (; 3 cr. ; Student Option; Spring Odd Year)
Methods/issues in computer understanding of natural language. Programming languages, their linguistic applications. Lab projects. prereq: [4201 or 5201] or programming experience or instr consent

LING 5900. Topics in Linguistics. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics vary. See Class Schedule.

LING 5993. Directed Study. (1-3 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed study for Linguistics. Prereq instr consent, dept consent, college consent.

MN Studies in Intl Devel Prog (MSID)

MSID 1001. Beginning Hindi. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 1004. Intermediate French. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 1221. Beginning Swahili I. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Study abroad course.

MSID 1222. Beginning Swahili II. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Study abroad course.

MSID 3001. Beginning Wolof. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 3004. Beginning Hindi. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 3005. Intermediate Hindi. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 3008. Advanced Hindi. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 3015. MSID Intensive Spanish Language Pre-Session. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 3021. Advanced Spanish. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 3025. Intensive French Language. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 3225. Intermediate Swahili I. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 3226. Intermediate Swahili II. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 3231. Advanced Swahili. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MSID 4001. International Development: Critical Perspectives on Theory and Practice. (; 4 cr. ; Student Option; Every Fall & Spring)
Explore a wide variety of perspectives on international development, with the host country as a case study. This course begins with 20 hours of common discussion on international development. The remaining course is divided into sections, and you select from the following sections in order to prepare for your internship or research project: (see track descriptions in syllabus for more information).

MSID 4002. MSID Country Analysis. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 4003. Community Engagement in the Global South. (; 4 cr. ; Student Option; Every Fall & Spring)
An internship or research project with a host-country development agency or project provides an unparalleled opportunity to study community characteristics, development strategies and problems, organizational structure and culture, and cross-cultural communication issues. The length of the internship or research project is 6 weeks during the first semester. You typically spend approximately 25 to 30 hours each week at your internship or research site, although this may vary depending on the specific site and project. A list of sample past internships and research projects is available. Written assignments help link experiences to theories and issues raised in the classroom. A program faculty member or the on-site director visits you at least once at your internship or research site during the internship/research period. At the end of each semester, you gather in the host city or a retreat site for a seminar, which helps integrate your experiences and newly acquired knowledge. 12 contact hours of this course are incorporated into the classroom phase and provide specific training on research methodology to prepare students for their research or internship project.

MSID 4004. Case Studies in International Development. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 4005. Advanced International Development Internship. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Engage in an extended internship with a nongovernmental organization throughout spring semester in order to gain practical hands-on experience in a grassroots community setting.

MSID 4006. Applied Field Methods. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 4007. MSID Directed Research. (; 4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5001. International Development: Critical Perspectives on Theory and Practice. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5002. MSID Country Analysis. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5003. Community Engagement in the Global South. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5004. Case Studies in International Development. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5005. Advanced International Development Internship. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5006. Applied Field Methods. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID 5007. MSID Directed Research. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

MSID Program in Thailand (THAI)

THAI 1001. Beginning Thai I. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

THAI 1002. Beginning Thai II. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

THAI 3001. Intermediate Thai I. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

THAI 3002. Intermediate Thai II. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

Madrid Learning Abroad Program (MADR)

MADR 1002. Beginning Spanish. (5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 1003. Intermediate Spanish III. (5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 1004. Intermediate Spanish IV. (5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 1401. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 1402. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 1403. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 1404. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 1405. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 3001. Financial Management. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3002. Ecology of Spain. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3003. Philosophy of Religion. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3004. Management and Organizational Behavior. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3005. Management and Ethics in a Cross-Cultural Context. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3006. World Religions. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3007. Contemporary Moral Problems: Ethics. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3008. Fundamentals of Marketing. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3009. Political History of Contemporary Spain. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3011. International Media. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3012. Internships in Spain. (3-6 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MADR 3013. Spanish Civilization. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course aims to offer a general view of Spanish culture and society through readings,

lectures, and cultural activities. This semester will focus on a few topics portraying the transformations experienced in the country during the last years: the political system, social and economic problems, multi-ethnic society, new role of women, new family models, and present image of Spain. We will combine lectures, PowerPoint presentations, videos, discussions of required readings, and group debates. Being in Spain gives you a great opportunity to widen your approach to culture through language, and one of the aims of this class is to help you achieve this goal. All students are expected to come to all sessions prepared, with all indicated assignments completed beforehand.

MADR 3014. Corporate Social Responsibility. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MADR 3015. Modern Masters: Goya, Picasso, Miro and Dali. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
study abroad course

MADR 3016. Topics in International Marketing. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MADR 3017. Spanish Conversation. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MADR 3018. Introduction to Biological Psychology. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MADR 3019. Culture, Globalization & Media. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The aim of this course is to introduce the notion of ?culture? as the set of mental, socially mediated constructs employed by individuals and groups to interpret reality. From that basis, this course examines the set of conflicts currently underway both within Western societies?as seen, for instance, in the ?Culture Wars? as well as in the latest US presidential election?as well as the tensions between the Western and non-Western cultures?such as those of India, China, and the Arab worlds?with an emphasis in the role played by the media and the cultural industries.

MADR 3021. Art at the Prado Museum. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The aim of this course is to make students familiar with the most relevant and internationally outstanding Spanish and European artists within the Prado Museum Permanent Collections. The course will help students to fully understand and assimilate art history fundamental concepts and movements such as Renaissance, Baroque, and Neoclassicism, with a specific concentration on Spanish masters such as El Greco, Vel?zquez, and Goya. Simultaneously, it will help students confront Spain?s and Europe most controversial history: from the dark Medieval Ages to the beginning of the 19th Century. Two observations will be fundamental to our investigations. The first is that art history involves the study not simply of formal concepts. A work of art has a physical presence that is offered by the artist but his/her ideas, convictions, and claims are shaped in large measure by specific social circumstances. The relevance of the latter are those that turn an artwork into a masterpiece. Thus, techniques and styles of representation are just the beginning of art history research. The second observation has to do with the relationship between art and culture: Art does not simply (or passively) reflect a given culture, but rather actively participates in its formation and development. A work of art, then, is the deepest expression of a social, religious, political, as well as intellectual context. Thus, thorough the artworks? analysis, students will develop critical and intellectual thinking by the means of observation, research, and interpretation.

MADR 3022. Spanish Civilization - ENG. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course aims to offer a general view of Spanish culture and society through readings, lectures and cultural activities. This semester we will focus on a few topics portraying the transformations experienced in the country during the last years: the political system, the social and economic problems, the multi-ethnic society, the new role of women, the new family models and the present image of Spain. We will combine lectures, power point presentations, videos, discussions of required readings, group debates. Being in Spain gives the student a great opportunity to widen his/her approach to culture through language and one of the aims of this class is to help them to achieve this goal. All students are expected to come to all sessions prepared for them. All indicated assignments are to be completed beforehand.

MADR 3023. Human Neuroanatomy. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course provides a broad introduction to the nervous system with an emphasis on the human nervous system. It will introduce the structure and function of neurons, the main anatomical units of the nervous system, and the main functional systems. We will approach functional systems through an understanding of the anatomical circuitry. We will study the fundamental concepts of neural communication early in the course and re-examine them later in the course relative to specific functional systems. Although the major focus will be the normal nervous system, we will introduce common diseases for each main topic. Students will gain an understanding of the nature of many common neurological diseases, which will provide further insight into how the normal nervous system functions. Through the assigned readings, lectures, and exercises, students are expected to gain an understanding of the neural circuitry and information processing responsible for the diverse range of human behaviors.

MADR 3024. Spanish for the Workplace. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed and customized for students during their academic stay abroad in the city of Madrid. The course is specifically designed to improve students? oral and written business communication skills through language immersion and study of the local cultural and work environment. In addition to academic study, the course will provide an overview of Spanish social culture as it applies to the professional workplace, focusing on specific fields of expertise that are of interest to the students.

MADR 3025. Modern Masters: Goya, Picasso, Dal? & Mir?. (AH,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The aim of this course is to make students familiar with the most relevant and internationally outstanding Spanish Modern artists: Goya, Picasso, Dal? & Mir?. With a specific concentration on these Spanish masters, the course will bring students to fully understand and assimilate such fundamental concepts and movements of art history as Impressionism, Cubism, Surrealism, Abstraction, and Minimalism. Simultaneously, it will explore one of the most controversial periods of Spanish and European history, from the 19th through the dawn of the 20th Century. Two observations will be fundamental to our investigations. The first is that art history involves the study of more than simply formal concepts. A work of art has a physical presence that is offered by the artist, but his/her ideas, convictions, and claims are shaped in large measure by specific social circumstances. The relevance of the latter are those that turn an artwork into a masterpiece. Thus, techniques and styles of representation are just the beginning of art history research. The second observation has to do with the relationship between art and culture. Art does not simply (or passively) reflect a given culture, but rather actively participates in its formation and development. A work of art, then, is the deepest expression of a social, religious, political, and intellectual context. Thus, through the analysis of works of art, students will develop critical and intellectual thinking by the means of observation, research, and interpretation.

MADR 3026. 100% Made in Spain: Design and Quality. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course focuses on the aesthetic and cultural changes in consumers and the ability of the Made in Spain managers to fine tune their marketing, communications, branding, and retailing efforts to an increasingly fast-paced environment. The course provides students with an extensive preparation on what are the most important asset of Made in Spain products: their ability to represent a paradigm shift. The course explores the evolutionary phenomena of the four F's (fashion and footwear, food and wines, furniture and building materials, and fabricated metal products and machinery) as well as design, renewable energy, railway construction,

e-commerce, and other industrial sectors. The course will lead students to understand the evolutionary strategic Made in Spain management and philosophy. The Spain Brand has appreciably revalued in the last four years (Repsol, Telef?nica, Acciona, Endesa), thanks above all to the presence of Spanish products throughout the world and in all areas of activity, of which we lead in at least a dozen. The internationalization accomplished by Spanish companies has allowed them to have a leading position (among the first ten countries in the world) in the food industry, fashion, gastronomy, technology, research, renewable energy, railway construction, organ transplantation, and sports. From Antoni Gaud? to the Culdesac studio, including ? scar Tusquets and Nani Marquina, Spain has always been a benchmark for quality design with international projection. This course looks at Made in Spain from both an economic and business point of view and shows a brief tour of the world of national designers and some of its most emblematic pieces. The Spanish fashion industry plays a fundamental role in economic development, with around 19,500 companies that make a contribution to GDP of 2.8%, and in the context of a highly competitive globalized market. As a result, Spain achieves the fifth place in importance in Europe after Italy, Germany, the United Kingdom, and France, both in production volume and in employment. This is due in large part to the design of products with high added value, leather and footwear accessories, and the use of modern marketing and distribution techniques that have revolutionized the sector.

MADR 3027. Contemporary Spanish History through Film. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Spanish cinema provides an excellent route for understanding social and political change throughout the 20th and 21st Centuries.
As the most important artistic medium of modernity, cinema allows one to construct and deconstruct many myths and identities. This course will analyze the most relevant Spanish film productions primarily as socio-historical documents (content). Topics in Spain may include the Republic and Civil War (Fern?n G?mez and Bu?uel), the ?60s comic criticism of dictatorship (Garc?a Berlanga), and censorship (Lazaga), the transition to democracy (Garci and Almod?var), and the new ?90s cinema (Amen?bar, de la Iglesia, Medem, Coixet, and Bolla?n).

MADR 3031. Introduction to Sensation and Perception. (3 cr. ; Student Option; Every Fall, Spring & Summer)
To develop an understanding of the psychological, biological, and physical bases of sensory experience in humans and animals. First we will consider the philosophical questions that humans have long posed about perception, and study the methods and techniques scientists use to try to answer them. We will study the sensory pathways, fundamental perceptual processing, and higher-level meaning-making, emphasizing the senses of vision and hearing. We will more briefly consider the orienting senses, skin senses, chemical senses (smell and taste), and the perception of time. Students must have successfully completed an introductory psychology course as a prerequisite.

MADR 3032. Learning and Behavior. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will cover methods and findings of research on learning and behavioral change. Additionally, students will learn about twentieth-century theoretical perspectives, including contemporary models. There will be an emphasis on animal learning behavior and behavioral psychology.

MADR 3206. Health Psychology. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Recent advances in psychological, medical, and physiological research have led to a new way of thinking about health and illness and understanding that our health is not only the product of biological processes but also of psychological, behavioral and social processes. Health psychology is a relatively young field of study that examines the relationship between psychology and health. The course highlights differences between health psychology and the biomedical model and examines the kinds of questions asked by health psychologists like: How our personality may affect our health? What does stress do to our health? What psychological and social factors cause people to behave in unhealthy ways? What can psychologists do to help cure illness? Are there ethnic and gender variations in health? Does it matter how your doctor talks to you?

MADR 3301. Cross-Cultural Psychology. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course's aim is to understand how cultural factors influence human behavior and development. Additionally, the course may discuss interaction between different cultures and how to solve the difficulties that may arise during the acculturation process. The course studies the vision and treatment of mental disorders in different cultures, especially the differences and similarities between Spanish and North American cultures. It will also analyze and compare mental health systems of both countries.

MADR 3401. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 3402. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 3403. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 3404. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 3405. Carlos III University of Madrid Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern Abroad in Madrid study abroad program to represent a course taken at Carlos III University of Madrid. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MADR 3604. Introduction to Abnormal Psychology. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The purpose of this course is to give the student an opportunity to explore current issues in understanding and treating abnormal behavior. The course will provide an initial overview of history, perspectives, assessment (DSM), diagnosis, and treatment, followed by an in-depth look at several disorders from a combined biological, developmental, and cultural approach. The focus will be to achieve an understanding of the various ways that human behavior can be compromised and the various factors that affect our ability to adapt.

MADR 3711. Psychology in the Workplace. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Application of psychological theory/research to recruitment, personnel selection, training/development, job design, work group design, work motivation, leadership, performance assessment, job satisfaction measurement Industrial / Organizational Psychology is the application of the scientific study of human behavior and thinking to work organizations. I/O Psychology is both an academic discipline and a professional discipline; thus, in this class we focus on both research and the application of research findings to practical problems in the workplace. I/O Psychologist are concerned with the recruitment, selection, training, motivation, and job performance of individual at work. They are also involved in issues such as teamwork, leadership, and job attitudes.

MADR 4901. Research Laboratory in Psychology. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

Management (MGMT)

MGMT 1001. Contemporary Management. (; 3 cr. ; A-F only; Every Fall & Spring)
How/why organizations differ in form/purpose in complex environments/technologies. Managerial challenges related to international management, social responsibility. Models of effective leadership/teamwork. prereq: Carlson School fr or soph

MGMT 1001H. Honors: Contemporary Management. (; 3 cr. ; A-F only; Every Fall & Spring)
How/why organizations differ in their forms/purposes in relation to complex/changing environments/technologies. Challenges related to international management and social responsibility. Models of effective leadership/teamwork. prereq: [Fr or soph] honors

MGMT 1005. Corporate Responsibility and Ethics. (CIV; 3 cr. ; A-F only; Every Fall & Spring)
Identify/apply ethical principles to resolution of moral challenges in management. Understanding place of business/corporation in society. prereq: Carlson School student

MGMT 1005H. Corporate Responsibility and Ethics. (CIV; 3 cr. ; A-F only; Every Spring)
Identify/apply ethical principles to resolution of moral challenges in management. Understanding place of business/corporation in society. prereq: Honors student

MGMT 3001. Fundamentals of Management. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Aspects/characteristics of organizations, their members. Why people/groups feel/behave as they do. Processes/methods that improve behavior/attitudes/effectiveness of members. Member/manager skills. Guest speakers, group presentations, films.

MGMT 3004. Business Strategy. (; 3 cr. ; A-F only; Every Fall & Spring)
Business strategy. How business firms set and pursue their goals. Key categories of strategic issues and concepts/frameworks managers use to analyze and address those issues. Attention to specific firms and situations. prereq: CSOM, soph or jr

MGMT 3010. Introduction to Entrepreneurship. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Fundamentals of entrepreneurship. Career paths, including new business start-ups, franchising, acquisitions (including family business succession), corporate venturing, and entre-preneurial services. Legal structures for new business formation. Aspects of business law/ethics.

MGMT 3033W. Business Communication. (WI; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Written/oral communication skills for effective participation in contempory organizations. From basic principles to communication strategy. Communication technology. Cases, simulations of "real-world" situations. Student small groups meet with instructor three times for presentation coaching/feedback. Recitation times are arranged with instructor at start of semester. prereq: Fr composition, CSOM upper-div, at least 60 cr

MGMT 3040. Understanding the International Environment of Firms: International Business. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Theories, frameworks, tools, and facts for understanding the environment of firms in international competition. Main world-level economic flows (trade, investment, finance). How country-/industry-level economic, political, and sociocultural factors influence behavior/functions of firms in international competition. prereq: 1001 or 1001H or 3001

MGMT 3900. International Business Communication. (GP; 3 cr. ; A-F only; Every Spring)
Course will help students understand the impact of culture and communication on business interactions around the world. Cultural studies and cross-cultural communication is a complex, multidisciplinary field. Students will be asked to reflect on the meaning of ethics and corruption in a multicultural environment and to consider how our understanding of other cultures influences best business practices. This course should help students to develop an empathetic understanding of other cultures, see through the eyes of others, understand how different cultural values can impact business practices, and think ethically about important global societal change and engage in difficult debates around moral, legal, and ethical issues.

MGMT 4000. Social Venturing in Action. (; 4 cr. ; A-F only; Every Spring)
Capstone course. Students choose project with nonprofit organizations in local community. Readings/discussions tie managerial theory to experiences. Issues that involve intersection of for-profit/not-for-profit economies. Primarily undergraduate class. Opportunities for selected grad students. prereq: Sr nonprofit major or instr consent

MGMT 4008. Entrepreneurial Management. (; 4 cr. ; A-F only; Every Fall & Spring)
Management of a new venture after founding. Internal/external challenges of managing a startup organization. Working with resource constraints and understanding how business models may change over time. prereq: concurrent registration is required (or allowed) in [3010 or IBUS 3010]

MGMT 4031. Industry Analysis in a Global Context. (2 cr. [max 3 cr.] ; A-F only; Every Spring)
This course covers concepts and tools required to devise strategies that enable a global business to create superior value for customers and to capture a sufficient share of that value. It will offer perspectives on analyzing competitive situations and identifying and evaluating strategic options. In particular, it focuses on:
- Applying fundamental concepts of strategic management--including strategy identification, the relationship of strategy and organization, industry analysis, competitor analysis, firm and industry evolution--coupled with economic theory and quantitative analysis to evaluate competitive strategies in a global context; - Developing an awareness of the impact of external environmental forces and of strategic actions by the firm and its rivals on business strategy. - Integrating knowledge gained in previous and concurrent core courses with a focus on understanding applying analytical concepts that are most useful to business analysts and managers. prereq: Mgmt 3004 or 3001

MGMT 4032. Corporate Strategy. (2 cr. ; A-F only; Every Fall)
This course examines issues of corporate strategy, i.e., issues associated with creating and managing a firm that operates in multiple businesses. Some of the key questions we shall seek to address through this course are: ? What are the drivers of corporate scope? How should a firm choose the activities/businesses it participates in? ? What are the sources of value for a firm from being diversified across multiple businesses? ? What are the challenges associated with managing across multiple businesses and markets? ? How are these challenges best dealt with? What structures and processes enable successful corporate diversification over time? The learning objective of this course is to help you learn to identify and define successful corporate strategies and offer solutions for the common problems that diversified firms face. The course not only introduces you to core concepts around corporate strategy, but it also seeks to develop your ability to critically evaluate the strategies of multi-business firms, through the extensive use of case discussions. prereq: Mgmt 3004 or 3001

MGMT 4034. Technology Strategy. (2 cr. ; A-F only; Every Fall)
This course addresses challenges and opportunities in the strategic management of technology and innovation. The course will equip students with the conceptual frameworks, tools, and language for analyzing and managing businesses in environments of technological change. We will examine how new technologies transform industries and create new markets, strategies for addressing technological change, and approaches for managers to shape and/or respond to new technologies. Because innovating or responding to new technologies often involves strategic and organizational change, we will also discuss how organizations change in response to new technologies. We will use a combination of readings, lectures, case discussions, and simulations. The final team project provides an opportunity to explore in-depth the technology strategy and innovation challenges of a particular organization. The class is heavily discussion-based, which means that all students must read the material and be prepared to contribute to the learning process. prereq: Mgmt 3004 or 3001

MGMT 4035. Mergers & Acquisitions Strategy. (2 cr. ; A-F only; Every Fall)
This course focuses on the strategic use of mergers and acquisitions (M&A) as a

means of new market entry and growth. It covers such questions as: when should one pursue an acquisition? What are the sources of value from an acquisition? What are the common challenges acquirers face? What should acquirers look for in a potential target? How should they integrate a target post-acquisition? It also considers the sell-side strategies for firms looking to exit businesses through divestiture. The learning objective of this course is to help you learn to identify and define successful mergers and acquisitions, and offer solutions for the common problems that firms face when undertaking acquisitions. The course not only introduces you to core concepts around M&A, it also seeks to develop your ability to critically evaluate firms? M&A choices, and to effectively communicate your assessment of these choices to a business audience. prereq: Mgmt 4032

MGMT 4040. Negotiation Strategies. (; 4 cr. ; A-F only; Every Spring)
Securing agreements between two or more parties who are interdependent and seeking to maximize their own outcomes. Behavior of individuals, groups, and organizations in competitive situations.

MGMT 4050. Managing Innovation and Change In Action. (2 cr. ; A-F or Audit; Every Fall & Spring)
This course focuses on how entrepreneurs create new businesses and how organizations innovate and change. Special emphasis is given to understanding the sequences of events that typically unfold in individuals, groups, organizations, and industries as innovations develop from concept to implementation. The course relies heavily on the concepts and findings from the Minnesota Innovation Research Program, as well as other studies. The course focuses on how the innovation journey unfolds in the creation of a wide variety of new businesses, technologies, products, programs, and services, and what paths along this journey are likely to lead to success and failure. The course emphasizes building diagnostic skills and developing useful principles that may increase the odds of maneuvering organizational innovation and change journeys. prereq: Mgmt 1001, 3001 or 3010

MGMT 4080W. Applied Technology Entrepreneurship. (WI; 4 cr. ; Student Option; Every Spring)
Team projects based on commercializable technologies or innovations. Teams present their ideas to investors and industry professionals. Students are encouraged to submit their business plans to Minnesota Cup.

MGMT 4100. Topics in Management. (; 2-4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Topics vary for each offering.

MGMT 4101. Independent Study in Strategic Management and Organization. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
Students contract with faculty on independent studies. prereq: instr consent or dept consent

MGMT 4170W. New Business Feasibility and Planning. (WI; 4 cr. ; A-F only; Every Fall & Spring)
New-business-opportunity identification/ development. Students conduct feasibility analysis, create formal business plan, gather feasibility data, and contact potential customers, suppliers, and other primary sources. prereq: 3010

MGMT 4171W. Entrepreneurship in Action I. (WI; 4 cr. ; A-F only; Every Fall)
Two-semester course. In fall, students identify a business oportunity, develop concept, determine resources required, and launch the business. In spring, students implement business plan, manage business, and determine exit strategy. prereq: 3010, [4008 or concurrent registration is required (or allowed) in 4008], completed coursework in business core, CSOM upper division, approved application

MGMT 4172. Entrepreneurship in Action II. (; 4 cr. ; A-F only; Every Spring)
Second of two-semester sequence. In fall, students identify business opportunity, develop concept, determine resources required, and launch business. In spring, students implement busienss plan, manage business, and determine exit strategy. prereq: 4171

MGMT 4173. New Venture Financing & Seed Stage Investing. (2-4 cr. ; Student Option No Audit; Every Fall & Spring)
This experiential course is offered to University undergraduate students interested in learning about new venture financing through the operation of an independent angel investment fund. It serves as an introduction to the subject matter, while providing a forum for the students to review investment opportunities, connect with members from the entrepreneurial and investor communities, and learn about startup fundraising through direct participation in the investment process. This course is being offered to complement a student-owned private venture capital fund in collaboration with individual accredited investors, which was initially formed in April of 2018. In addition to the ongoing management of the fund operations and reporting, the students will be responsible for ongoing capital raising. Final authority for all investment decisions rests with the students.

MGMT 4500. Senior Seminar in International Business. (2 cr. ; A-F only; Every Fall & Spring)
International business capstone. Topics related to doing business globally. Opportunity to integrate study abroad/coursework experiences. prereq: CSOM sr, completed semester abroad, IB major or minor

MGMT 5018. Philanthropy & Fundraising Strategy. (2 cr. ; A-F only; Every Spring)
This brief experiential course explores the evolving world of philanthropy and provides an opportunity to directly influence a real-life nonprofit?s funding strategies. It shows students how, despite resource constraints, nonprofit organizations can effectively build meaningful engagement and financial support around society?s most pressing needs. It provides an immersive experience ? supported by a professional ecosystem ? where students can learn, be inspired and leave this class more driven (and capable) to be ?a force for good.? By the end of this course, students will have gained hands-on consulting experience in partnership with nonprofit organizational leaders, active consultants and major philanthropists. They will have devised and presented implementable strategies at the ? virtuous nexus? between potential donors and their client?s organizational needs - solutions which increase engagement and promote lasting symbiotic relationships between the private and nonprofit sectors. They will be well-positioned to make a significant positive impact throughout their careers in the Twin Cities and beyond.

MGMT 5102. StartUp: Customer Development and Testing. (2 cr. ; A-F only; Every Fall & Spring)
Provides a structured process with faculty and mentor oversight for students at any level and from any college at the University to learn the initial process of customer development by testing market acceptance of a specific new business concept. Students primarily take this course individually and must have an idea or technology that they are interested in pursuing. The goal of the curse is to teach the process to quickly and efficiently test the value and market fit for a new concept.

MGMT 5480. Topics in Natural Resources. (; 3 cr. ; A-F only; Periodic Spring)
Specific topic for each offering.

Management of Technology (MOT)

MOT 4001. Leadership, Professionalism and Business Basics for Engineers. (; 2 cr. ; A-F only; Every Fall & Spring)
Elements of business, environment in which technology/business operate. Classes of 15 to 20 students.

MOT 4010. Management of Science and Technology in the Middle East, Global Seminar. (GP; 3 cr. ; A-F only; Every Spring)
Middle East global seminar, including 8 weeks of classroom learning prior to May departure. Technology areas such as solar energy, water desalination, security technology, alternative fuels, and biomedical devices.

MOT 4020. Special Topics in Management of Technology. (; 2 cr. ; S-N only; Every Fall)
Special Topics in Management of Technology

MOT 5001. Technological Business Fundamentals. (2 cr. ; A-F only; Every Fall)
Basics of operations, strategy, decision-making in technology-driven business. Market opportunity assessment, finance/financial decision-making, organizational roles. Work in teams to analyze aspects of business opportunity. prereq: Degree seeking or non-degree graduate students

MOT 5002. Creating Technological Innovation. (2 cr. ; A-F or Audit; Every Spring)
Course provides students with techniques to create new ideas, and lead an organization to

bring them successfully to market. It will include examples of the dynamics of technological industries, and technology strategies. Topics include effective practices to generate ideas, processes to move them to market, and intellectual property. Students will work in teams to develop a strategy to commercialize a new technology. prereq: Degree seeking or non-degree graduate students.

MOT 5003. Technological Business Planning Workshop. (1 cr. [max 2 cr.] ; A-F only; Every Fall & Spring)
Applies lessons of 5001 or 5002 directly to technology of the student's choosing, possibly thesis topic. Aspects of strategic technology plan or business plan, culminating in presentation of plan. Must be taken in parallel with 5001 or 5002. prereq: Degree seeking or non-degree graduate students. Student must also enroll for MOT 5001 or MOT 5002.

MOT 5991. MOT Independent Study. (; 1-3 cr. [max 1 cr.] ; S-N or Audit; Periodic Fall)
Independent study in MOT-related topic. prereq: MOT grad student

Managerial Communications (MCOM)

MCOM 5400. Managerial Communications for the HR Professional. (; 2 cr. ; A-F only; Every Fall & Spring)
Memo writing, oral presentations, and team communication required of HR professional. Emphasizes hands-on, experiential learning, including videotaping. prereq: HRIR student

MCOM 5500. Enhancing Your Executive Image in Business Communications. (2 cr. [max 4 cr.] ; A-F only; Every Fall)
Techniques to project executive presence in all business communications. prereq: MBA student

MCOM 5510. Persuasive Writing in Business. (; 2 cr. ; A-F only; Periodic Fall)
Writing to motivate/affect change. Form/content. Techniques of persuasion. Producing polished text. Writing with power. prereq: MBA student

MCOM 5530. Strategies and Skills for Managerial Presentations. (; 2 cr. ; A-F only; Periodic Fall)
Delivering key messages with clarity/confidence, regardless of audience or setting. Maximizing impact as a speaker, seated/standing. Personal communication style and audience. Tailoring message. Handling questions/answers. Using audio/visual tools. Presenting as a team. prereq: MBA student

Manufacturing Operations Mgmt (MM)

MM 3001W. Manufacturing in the Global Economy. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
In this foundation course for manufacturing operations management, you'll find out just how innovative, strategic, and creative manufacturing is. The course is the perfect entry point for students majoring, minoring, or getting a certificate in manufacturing operations management, and it's also a great elective for students seeking a better understanding of the core sector in both U.S. and international economies. The overall objective of MM 3001W is to explore different facets of manufacturing in today's global economy, and the three dimensions of the high-performance manufacturing organization (HPMO) model--leadership, product quality, and innovation--are paramount in that exploration. You'll take a look at past and current Minnesota manufacturing companies (3M and Red Wing Shoes, for example) that are surviving and thriving in today's economy, and also learn why some of those Minnesota companies have failed. As a writing intensive course, MM 3001W also prepares students to be successful writers, both in their coursework at the University of Minnesota and in their future careers, as special attention will be paid to real-world writing applications, skills, and processes. Prerequisites: None.

MM 3205. Engineering for Manufacturing Operations. (; 3 cr. ; A-F or Audit; Every Fall)
What makes a factory run? In this course, you'll learn all about those intricacies and gain the tools and skills required to create high-output systems that can reliably function day in, day out. You will do most of your learning through creative exercises. For example, you'll take apart a flashlight to create the tools needed for manufacturing, and you'll validate a piece of equipment while toasting a loaf of bread. Your final project will be designing and manufacturing your own holiday card. Since the best learning happens when there's flexibility to fail, the instructor creates assignments that have a little ambiguity to them. (Students can even turn in homework twice to improve their grade, if needed.) By the end of this course, you'll have the confidence to work effectively across silos, and you'll have a wealth of career advice from an instructor with over 20 years' experience leading teams at Fortune 500 companies. Prerequisite: None

MM 3305. Advanced 3D Printing for Innovative Business Practices. (3 cr. ; A-F or Audit; Every Fall & Spring)
Revolutionize your world with speed and creativity. Three-D printing and additive manufacturing are changing how we work and how manufacturing itself happens. In this course, you'll hone the ability to innovate and to lead others in discovery. The first half of the semester is spent learning how to use additive technology and the second half how it can be applied to real-world industries. By the end of the course, you'll use computer-aided design and the U of M's 3D printing lab to build your own solution to a problem. Join this community of forward-thinking makers and tap some of the most high-tech resources at the U. Prerequisites: None

MM 4011. Virtual Reality and Simulation in Manufacturing. (; 3 cr. ; A-F or Audit; Every Spring)
Virtual reality meets manufacturing in this course for creative problem solvers. By mastering the use of simulation software (Simio), you'll be able to assess product flow along an assembly line and suggest sequences that dramatically improve efficiency, thereby cutting costs. The skill set students acquire in this course has opened innumerable doors for job seekers because visual representations provide hard evidence that certain models will be successful. Learn how to simulate many different processes at once and be introduced to augmented and virtual reality, new technologies that are being introduced to speed up the development of manufacturing lines. This course will enhance any career path that involves operations and efficiency. Prerequisite: None

MM 4012. Advanced Manufacturing: Applied Process and Technology. (; 3 cr. ; A-F or Audit; Every Spring)
Prepare to take a deep dive into the nitty-gritty as well as the art of manufacturing. You will study the myriad details that comprise the manufacturing process, tracing how raw materials are transformed into sophisticated devices in the most efficient ways. You will learn three important things that can be applied directly to any job: 1) how to deconstruct the value-added steps of a manufacturing assembly, 2) how to construct a process flow diagram, and 3) how to perform a process capability study. If you want to gain expertise in how factory work is planned, measured, studied, improved, and optimized, then you've come to the right place. Beyond this, you will also walk away with an understanding that manufacturers are true artisans whose expertise shapes our world in countless ways. prereq: A course such as MM 3001W, or relevant manufacturing experience.

MM 4035. Global Supply Chain Management. (; 3 cr. ; A-F or Audit; Every Fall)
A supply chain is the process that ensures that any particular thing gets made and distributed efficiently and with high quality. It comprises diverse suppliers, all of whom have a different role to play. You will learn about the complex ballet that ties these suppliers together into a larger system and schedule?a supply chain. Through weekly online group work and real-life case study analysis, you will come to understand the value of interrelationships between product development, purchasing, manufacturing, customer service, and distribution. Your subject matter will be the real-world function of supply chains for familiar products, and by the end of the course, you will know how to think about effective supply chains. You?ll also have opportunities to do a complete analysis of a real organization as well as interview a professional who works with supply chains on a daily basis. prereq: None.

MM 4039. The Science of Sourcing: Partnerships for Success. (; 3 cr. ; A-F or Audit; Every Spring)
Learn how to maneuver with ease inside the complex network of global manufacturing and outsourcing. The Science of Sourcing is all about setting up a sourcing strategy that hinges on two things: core competencies of your

business and, of course, customer satisfaction. By the end of this course, you'll be able to do three things really well: 1) identify which products or processes should be outsourced, 2) perform estimates for cost and comparison of outsourcing options, and finally, 3) execute step-by-step outsourcing as you choose suppliers. You?ll also be exposed to the art of managing an outsourced manufacturer relationship, which includes contracts and performance metrics. It's all about upholding quality and value. Prerequisite: A course such as MM 3001W, or relevant manufacturing experience.

MM 4045. The Product Life Cycle in a Regulated Industry. (; 3 cr. ; A-F or Audit; Every Spring)
There's much to learn when it comes to designing, developing, manufacturing, and selling something, but this course skillfully covers it all while teaching how to successfully commercialize a product. Students will delve into real-world analysis of product regulation of any kind--from a box of cereal to a medical device. After this course, you?ll be able to a) improve efficiency in any part of a product's life cycle, b) develop soft skills needed to clearly communicate your ideas for improvement, and c) fully wrap your brain around human factors and customer requirements that must be considered before the product's development is complete. This material has endless applications in the workplace. prereq: None.

MM 4102. Optimizing Operations Management. (; 3 cr. ; A-F or Audit; Every Fall)
In this course, students learn how to put the pieces of the manufacturing puzzle together--they delve into the details of an organization's operations strategy and develop an understanding of how the system works, from product concept to finished reality. Emphasis is placed on learning valuable techniques for improving organizational performance, which include computer-enhanced problem solving and decision making. You will develop critical thinking skills that allow you to think holistically about how to create order out of chaos in an operations unit. Through weekly online group work assignments; opportunities to give dynamic multimedia group presentations; interviewing a real-world operations manager; and mastering the stages of forming, storming, norming, and performing, you will leave feeling prepared to take on whatever operations management challenges come your way. prerequisite: None.

MM 4193. Capstone Directed Study. (3 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
You've learned a lot so far in the Manufacturing Operations Management program. Now it's time to use all that hard-earned knowledge as you embark on your capstone project. A culminating experience using all the skills and concepts you're familiar with, the capstone is an opportunity for you to identify a specific problem, question, or course of study pertaining to manufacturing operations. This will be your primary focus over the length of the course. Working with your capstone adviser, you will develop a project requiring 135 hours or more of research and work. You will then generate data and use appropriate models to create comprehensive reports and solutions to the project you've chosen, and you will present your findings at the end of the semester. The capstone course is a great option for students who are already employed full-time and wish to select a project that's somehow connected to their employment. prereq: MM major or minor or certificate, departmental approval

MM 4201. Quality Engineering and Management. (; 3 cr. ; A-F or Audit; Every Fall)
Quality makes or breaks an organization. Without continuous quality improvement, performance fails, sales drop, and organizations die. This course delves into three essential truths: 1) the customer is the ultimate judge of quality; 2) every process has variation, which must be fully understood before it can be improved; and 3) a lean, mean, structured plan will make problem solving a cinch when it comes to process improvement. Students will learn more than just the technical aspects of quality management; they will also learn the history and modern application of quality, quality management tool interfaces, and what it takes to be a leader in quality as a profession. prereq: none, but knowledge of statistics will be very helpful.

MM 4311. Sustainable Lean Manufacturing: Eliminating the Waste. (; 3 cr. ; A-F or Audit; Every Spring)
One of the most important skills you can cultivate in manufacturing (or really any line of work) is the ability to clear away the clutter and streamline the process. Sustainable Lean Manufacturing teaches students three things: 1) wasted time, effort, and money exist in every process involving a product or service; 2) it?s possible to clearly see and identify where waste occurs; and 3) there?s a surefire set of tools and techniques to make a process less wasteful and more efficient. Bottom line: students leave this course viewing everyday life with a different perspective, knowing there?s always room for improvement in workflow. prereq: None

MM 4596. Internship. (; 1 cr. [max 3 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
An MM internship provides students with the opportunity to gain hands-on experience working with professionals in a manufacturing setting and get an insider's view of manufacturing operations management in the workplace. In consultation with a faculty adviser, students apply classroom learning and prepare for the transition from school to full-time MM employment. Students seeking credit for the internship are expected to find employment that primarily draws upon the intern's academic knowledge in management level tasks and allows for new learning in these areas. prereq: [MM major or minor or certificate or instr consent], dept consent

Manufacturing Technology (MT)

MT 3111. Elements of Microelectronic Manufacturing. (; 3 cr. ; A-F only; Every Spring)
Common micro fabrication processes, how they are applied to CMOS manufacturing. prereq: Completion of physics, chemistry, [college algebra or precalculus] with grade of at least C-, 45 sem cr

MT 3112. Elements of Micro and Nano Manufacturing Laboratory. (; 1 cr. ; A-F only; Every Spring)
Basic process steps to make top-down micro-/nano-scaled structures. Oxidation, photolithography, electron beam lithography, chemical vapor deposition, etching, rapid thermal annealing, wet chemical/plasma etching. Students build test chip containing various micro-mechanical structures. prereq: concurrent registration is required (or allowed) in 3111

MT 3121. Thin Films Deposition. (; 3 cr. ; A-F only; Every Spring & Summer)
Thin film materials such as metals/oxides. Photolithography, methods of deposition. HV/UHV range. Vacuum evaporation, sputtering, chemical vapor deposition. prereq: Physics, chemistry, [college algebra or precalculus], 45 cr

MT 3131. Introduction to Materials Characterization. (; 4 cr. ; A-F only; Every Spring)
Four methods: electron beam microscopy, optical microscopy/FTIR, proximal probe techniques, x-ray/ion beam scattering. Principles for, and information from, each method. prereq: Completion of physics, chemistry, [college algebra or precalculus] with grade of at least C-, 45 sem cr

MT 3141. Principles and Applications of Bionanotechnology. (; 4 cr. ; A-F only; Every Spring)
Introduction to protein, lipid, and nucleic biochemistry. Biomolecule design, production using recombinant DNA technology. Use in nanodevices and nano-materials. Applications of biological molecules in bionanotechnology. Effects of Brownian motion. Biomolecular surfaces forces. Biomolecule structure alterations due to molecular interaction. Self-assembly. prereq: Completion of physics, chemistry, [college algebra or precalculus] with grade of at least C-, 45 sem cr

MT 3142. Nanoparticle Technology and Engineering Laboratory. (; 1 cr. ; A-F only; Every Spring)
Overview of challenges and tools for measuring properties of nanoaerosols. Optical particle counters, condensation particle counters, differential mobility analysis, electrosprays, atomizers, single-particle mass spectrometers. prereq: Completion of physics, chemistry, [college algebra or precalculus] with grade of at least C-, 45 sem cr

Marketing (MKTG)

MKTG 1918. Finding Happiness In The Age Of Consumption. (; 2 cr. ; A-F only; Every Fall)

In today?s culture of consumption, free choice, and materialism, the pursuit of happiness through the ?good life? seems to be an attainable goal. Retail therapy uplifts our spirits. Finding the best deals gives us a sense of accomplishment. Online shopping makes it ever so easy to instantly gratify our desires. Enjoyment through food, travel, and novel experiences is more accessible than ever. A wide variety of entertainment and social connections are available, literally, at the tip of our fingers. Still, we feel empty, wanting, and dissatisfied time and again. We continue to experience boredom, unhappiness, and loneliness. Why this paradox? This question has spurred recent research in consumer behavior, decision making, and psychology. In this seminar, we will explore some of the latest scientific findings as well as selected perspectives from ancient philosophy to help us understand this phenomenon and build a happier and better life. We will tackle questions such as, how can we experience more happiness in our lives? Can we increase the level of enjoyment we experience through our consumption activities? How can we make happiness last longer? What are some effective ways of reducing boredom and dealing with negative emotions? How can we increase our wellbeing through our daily work and activities in college? Most importantly, we will develop a tool kit to help us on our journey to happiness and success.

MKTG 3001. Principles of Marketing. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Introduction to terms, concepts, and skills for analyzing marketing problems. Factors outside the organization affecting its product, pricing, promotion, and distribution decisions. Cases from actual organizations. prereq: ECON 1101

MKTG 3001H. Honors:Principles of Marketing. (; 3 cr. ; A-F or Audit; Every Spring)
Honors: Introduction to terms, concepts, and skills for analyzing marketing problems. Factors outside the organization affecting its product, pricing, promotion, and distribution decisions. Cases from actual organizations. prereq: ECON 1101, Honors Student

MKTG 3005. Introduction to Applying Analytical Tools for Solving Business Problems. (2 cr. ; A-F only; Every Fall)
The ability to make intelligent business decisions based on large data and information is becoming increasingly important for businesses and managers. This course provides a practitioner-oriented introduction of applying analytical tools in business setting. This class entails hands-on computer exercises on real data sets to apply various analytical techniques in common business applications. This course assumes that students have knowledge of fundamental analytical tools and statistical methods. The class emphasizes understanding model assumptions to help students with appropriate model selection; interpreting results in order to make optimal business decisions; designing experiments in a business setting and analyzing the experimental data to advance business objectives. prereq: SCO 2550 or equivalent statistics course

MKTG 3010. Marketing Research. (4 cr. ; A-F or Audit; Every Fall & Spring)
This course focuses on managing the entire marketing research process, which involves collecting and analyzing relevant, timely, and accurate information to gain customer insights and drive effective marketing decision making. Students learn fundamental techniques of data collection and analysis to solve specific marketing problems. The class offers hands-on learning-by-doing opportunities through group projects for students to practice every stage of marketing research. prereq: 3001 and SCO 2550 or equiv statistics course

MKTG 3040. Buyer Behavior. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Application of behavioral sciences to buyer behavior. Perception, attitudes, learning, persuasion, motivation, decision-making, social/cultural influences, managerial implications. prereq: 3001

MKTG 4030. Sales Management. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Hiring, motivating, performance enhancement. Customer relationship management, data analysis, quantitative methods. Developing metrics to evaluate individual/group performance in attaining an organization's strategic goals. prereq: MKTG 3040

MKTG 4050. Advertising and Promotion. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Managing/integrating communication aspects of marketing. Advertising, sales promotion, public relations. Setting objectives, selecting media. Measuring effectiveness. Sales promotion techniques. Issues in global IMC. prereq: MKTG 3010 and MKTG 3040 or instructor approval

MKTG 4060. Marketing Channels. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Design/management of channels of distribution in consumer/industrial settings. Interrelationships between marketing institutions in channels of distribution. Logistics, supply chain strategies. prereq: MKTG 3010 and MKTG 3040 or instructor approval

MKTG 4072. Marketing-in-Action: Marketing Practicum. (4 cr. ; A-F or Audit; Every Fall)
This course focuses on what marketers do in real-life. Each week begins with guidance on approaching a typical task, then developing recommendations by working in groups during class with ongoing feedback from the instructor, and concluding with a short presentation. Weekly topics may include identifying marketing challenges (ala Shark Tank), segmenting customers, pricing a product, and developing an advertising plan. The course concludes with a multi-week, interactive simulation in which students compete in groups as they manage a product. prereq: MKTG 3001 and SCO 2550 or equivalent statistics course; OR CSOM Major OR NonMajor OR Acct Cert, Housing Studies, Retail Merch, Bio Prod (Mktg subplan), OR Journalism

MKTG 4074. Data-Driven Marketing. (4 cr. ; A-F only; Every Spring)
This course emphasizes various analytical techniques and statistical models with hands-on applications of marketing data and software tool kits. The course will cover classic marketing topics such as segmentation, positioning, new product development, advertising, and pricing. It will focus on how to choose and apply the most effective statistical tool to analyze questions on marketing topics and then translate the information from analysis into data-driven decisions. The goal is to increase students' comfort level of analyzing large marketing databases and help understand how a scientific approach can enhance marketing decision making by converting data into insights. prereq: Mktg 3010

MKTG 4076. Digital Marketing. (2 cr. [max 4 cr.] ; A-F only; Every Spring)
The Internet and digital technologies have continued to alter the way consumers search information, make transactions, and share experiences, as well as the way firms market towards and engage with consumers. In today's digital era, it is imperative for marketers to understand how to gain a competitive edge by leveraging digital media to set targeting strategies and implement the marketing mix. This course will provide a structured framework to introduce students to the most up-to-date tactics, applications, and trends in digital marketing. The course is organized around three main sections developed by the instructor: - Internet marketing, which explores the impact of Internet on (1) consumer behaviors and (2) advertising strategies. - Social marketing, which focuses on (1) the formation of online social networks and (2) social media analytics. - Mobile marketing, which examines (1) location-based targeting and (2) the management of omni-channel marketing. prereq: Mktg 3010

MKTG 4080W. Marketing Strategy. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Determining product markets where organizations should compete based on ability to create/maintain competitive advantage. External environment of business. Constructing/evaluating global marketing strategies. Largely case-based. prereq: 3001, 3010, 3040, 12 cr in marketing, sr

MKTG 4082W. Brand Management. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Brand asset management. Measuring brand knowledge. Building and leveraging brands. Managing brands globally. prereq: MKTG 3010 and MKTG 3040

MKTG 4085. Nudge: Improving Decisions about Health, Wealth, and Happiness. (2 cr. ; A-F only; Every Spring)
People do surprising and funny things. Business leaders, policy makers, and scientists long have been interested in why people do what they do, and for a long time that interest has fallen under the rubric of a "rational man" model. It is now clear that the rational model is imperfect, at best. This course takes a look at the less rational side of life, studying the shortcuts, the low road, and the error-

prone processes that enable people to feel, decide, and act efficiently--despite costs to rationality. For most of the past 200 years, most of what organizations, politicians, and well-meaning people did in order to make consumers change their behavior consisted of what might be called "shoves"--heavy-handed, choice-restricting, highly-incentivized, information-dense treatments that basically told consumers what to do (or else!). Those, by and large, do not work. Not only do they not work, but they are also costly and can even make the unwanted behavior emerge even more than before the shove by creating boomerang or counterproductive effects. prereq: MKTG 3001

MKTG 4090. Marketing Topics. (; 2-4 cr. [max 8 cr.] ; A-F or Audit; Every Spring)
Selected topics and problems of current interest considered in depth. Class discussion and course projects.

Martin Luther King, Jr Program (MLK)

MLK 1001. CLA First-Year Experience I. (1 cr. ; S-N only; Every Fall)
This course is designed to help MLK students transition into the University of Minnesota and the College of Liberal Arts. The course will include various opportunities to engage, create, and reflect on your own unique experiences and identify effective strategies, skills, and tools to be successful in your first year and beyond.

MLK 1002. CLA First-Year Experience II. (1 cr. ; S-N only; Every Spring)
This course is designed to help MLK students achieve their individual goals by promoting proactive educational and career planning, introducing CLA's Core Career Competencies, and encouraging students to reflect on how they are developing them in their first year.

Master of Business Admin (MBA)

MBA 5200. Directed Studies for Curricular Practical Training (International Full-Time MBA Students Only). (; 1-3 cr. ; S-N only; Every Fall & Spring)
CPT is work authorization which allows a student to work in a job directly related to the student's major area of study before degree completion. prereq: International FT MBA student with approval from the MBA Office

Master of Business Taxation (MBT)

MBT 5200. Tax Accounting Methods I. (; 2 cr. ; A-F or Audit; Every Spring)
This course covers the federal income tax rules for when income and expense should be recognized. The purpose of this course is to provide students the statutory and regulatory framework for analyzing and explaining the federal income tax consequences of tax accounting methods and periods issues. prereq: ACCT 5135, MBT student

MBT 5201. Tax Accounting Methods II. (2 cr. ; A-F or Audit; Every Spring)
This course covers special topics within the tax accounting methods area, including changes in accounting methods, accounting periods, installment sales and inventory concepts. The purpose of this course is to provide students statutory and regulatory framework for analyzing and explaining the federal income tax consequences of special tax accounting methods issues. prereq: MBT 5200

MBT 5220. Tax Research, Communication, and Practice. (; 4 cr. ; A-F or Audit; Every Fall)
Tax questions. Locating/assessing potential authority. Communicating research results. Sources of IRS policy. Processing/auditing returns. Rulings, determination letters. Closing agreements. Assessments, collections. prereq: ACCT 5135

MBT 5223. Tax-exempt Organizations. (2 cr. ; A-F or Audit; Spring Odd Year)
Tax law/issues concerning Section 501(c)(3) and other tax-exempt organizations. Qualification, procedures. Unrelated business income, private foundations (including intermediate sanctions), joint ventures. prereq: ACCT 5135

MBT 5226. Negotiation Techniques in Taxation. (; 2 cr. ; A-F or Audit; Every Summer)
Hands-on approach. Applications from facilitating business sales, mergers, and acquisitions, to representinga client's position before IRS, to controlling TV remote. Negotiation process: planning, pre-negotiation preparation, strategy development.

MBT 5230. Corporate Taxation I. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Federal income taxation of corporations/shareholders. Organization of a corporation. Establishment of capital structure. Determination of tax liability. Dividends, non-liquidating distributions. Stock redemptions, liquidations. prereq: ACCT 5135

MBT 5323. Corporate Taxation II. (; 2 cr. ; A-F or Audit; Every Spring)
Different types of acquisitions, dispositions, reorganizations, and spin-offs involving C corporations. Tax consequences of acquisition to corporations/shareholders involved. Use of 338 elections, limitations on acquired net operating losses/credits, use of covenants not to compete, consulting agreements, deferred payment terms, treatment of transaction costs. prereq: MBT 5230

MBT 5333. Tax Aspects of Consolidated Returns. (; 2 cr. ; A-F or Audit; Every Summer)
Filing. Determining affiliated groups. Election filing. Intercompany transactions. Limitations on certain loss and credit carryforwards. Allocation of federal income tax liability. E&P, investment basis adjustments. Loss allowance rules. Excess-loss accounts.

MBT 5335. Taxation of the Small Business Corporation. (; 2 cr. ; A-F or Audit; Every Summer)
Federal income taxation of S corporations. Election eligibility; termination of status; treatment of income and deduction items; distributions, basis of stock and debt. Compensation arrangements in closely held corporations; fiscal year issues; personal service corporations; advantages of C corporations vs. S corporations; corporation liquidation and redemption rules; S corporation's built-in gains tax. prereq: 5230

MBT 5340. Taxation of Partners and Partnerships. (; 2 cr. ; A-F or Audit; Every Spring)
Reviews tax consequences associated with formation, operation, and dissolution of a partnership. prereq: Acct 5135

MBT 5346. ASC 740 Computations and Analysis. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Financial accounting/reporting standards for effects of income taxes from corporate activities. Computation of current/deferred tax expense/benefit. Temporary differences, carryforwards. Computation of deferred tax assets/liabilities, valuation allowances, business combinations. Investments in subsidiaries, equity method investments. Foreign operations, tax allocations, interim period tax calculations.

MBT 5347. Tax Technology and Analytics Fundamentals. (; 2 cr. ; A-F or Audit; Every Spring)
Tax technology is transforming the way tax departments are doing business in many amazing ways. Both public accounting firms and businesses are investing in people, process, data, and technology at a rapid pace. This course provides the student with relevant background on current technologies and associated challenges, managerial approaches, systems design, process, data challenges and risk assessment methods that are specific to the tax technology arena. Additionally, it will focus on the fundamental concepts of project management, business requirements, data analytics, implementation choices, and the necessary business cases that are being conducted in both the public and private sector. prereq: ACCT 5135

MBT 5348. Advanced ASC 740 Concepts. (2 cr. ; A-F or Audit; Spring Even Year)
Examination of topics under ASC 740 Accounting for Income Taxes. Share-based awards, uncertain tax positions, valuation allowances, business combinations, foreign operations, interim period tax calculations. Process design/perspective of stakeholders of income tax accounting. prereq: 5346

MBT 5350. Wealth Transfer I (Estates and Gifts). (; 2 cr. ; A-F or Audit; Summer Even Year)
Taxation of transfers under federal estate and gift tax laws. Property owned by decedent. Retained life estates. Transfers taking effect at death. Revocable transfers. Joint interest. Powers of appointment. Valuation. Expenses, debts, taxes. Charitable bequests, marital deduction. Taxable inter vivos gifts, splitting/credits. prereq: ACCT 5135, MBT student

MBT 5353. Trusts and Estates. (; 2 cr. ; A-F or Audit; Summer Odd Year)
Simple, complex, and revocable trusts. Estates. Accumulation distributions and income with

respect to decedents. Trust accounting income and principal. Distributable net income. Terminations. Excess distributions. prereq: ACCT 5135

MBT 5360. State and Local Taxation. (; 2 cr. ; A-F or Audit; Every Spring)
Examines state levying of individual income, corporate income, property, sales, and excise taxes. Tax problems of businesses with multistate operations. prereq: Acct 5135, MBT student

MBT 5363. Compensation and Benefits. (; 2 cr. ; A-F or Audit; Every Fall)
Federal income taxation of executive compensation, relevant fringe benefit programs. Benefit programs other than qualified retirement plans. Salary continuation, stock options, non-profit organization plans, health/welfare plans. prereq: ACCT 5135

MBT 5370. Taxation of Property Transactions. (; 2 cr. ; A-F or Audit; Every Fall)
Determining realized gain or loss and recognized gain or loss, and tax treatment of that gain or loss on property dispositions. Consequences of property transactions including depreciation, depletion, basis, and capital gains problems. prereq: Acct 5135

MBT 5380. Tax Aspects of International Business I. (; 2 cr. ; A-F or Audit; Every Fall)
Multinational business operations/transactions involving foreign income. Tax consequences of transactions with/by foreign organizations/ companies. prereq: 5230

MBT 5381. Tax Aspects of International Business II. (2 cr. ; A-F or Audit; Spring Even Year)
Foreign tax credit, Subpart F planning opportunities, international structuring (joint ventures, use of entity classification regulations). Transfer pricing, foreign currency. Legislative, regulatory, and judicial developments. prereq: MBT 5380

MBT 5382. Transfer Pricing. (; 2 cr. ; A-F or Audit; Spring Odd Year)
Transfer pricing requirements facing multinational companies. Tax requirements of the United States and other countries that have adopted the "arm's-length standard" or the transfer pricing guidelines adopted by the Organization for Economic Cooperation and Development. Regulations, methods, economic models, pricing policies, transaction accounting, and management of audits of managing transfer prices within a multinational company. prereq: ACCT 5135

MBT 5420. Current Topics in Taxation. (; 1-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Tax research/compliance, other tasks. Students submit summary paper. prereq: ACCT 5135, MBT student

MBT 5500. Business, Government, and Economic Tax Policy. (2 cr. ; A-F only; Every Fall & Spring)
Effects of business/government on tax system. Social, political, economic, cultural values affecting tax system. Macroeconomics/ implication for taxation. History of taxes/ alternate approaches to taxation, public finance, government expenditures in theory/ practice. Specific taxes. prereq: MBT 5230

Master of Development Practice (MDP)

MDP 5001. Ways of Knowing for Sustainable Development. (; 2 cr. ; A-F or Audit; Every Fall)
Complexities of interdisciplinary study of development and a range of ways of knowing the field of development studies and sustainability. Approaches practiced by physical, biological, social science, and humanities scholars. "Ways of knowing" in different cultures/groups and from a variety of situated perspectives. Key issues and concepts and key methodological challenges facing us as we engage in interdisciplinary and international development study and practice. Sustainable livelihoods. Team taught when possible by faculty from biological, social sciences, and humanities, or at minimum will include guest lecturers who can offer a range of disciplinary perspectives on questions of development. prereq: Grad MDP major or instr consent

MDP 5002. Program Development Workshop. (3 cr. [max 4 cr.] ; A-F only; Every Spring)
Research/writing skills to support work in international development. Discussion of basic qualitative research methods/data analysis. Qualitative/quantitative data, collaborative research/analysis. Relationship between research/policy. prereq: MDP grad student or instr consent

MDP 5004. International Field Experience. (; 3 cr. ; S-N or Audit; Every Summer)
International field experience. prereq: MDP grad student or instr consent

MDP 5005. Qualitative Methods for Development Practice. (3 cr. ; A-F only; Every Spring)
Course introduces students to qualitative inquiry and analysis in the field of international and/or sustainable development practice. It provides students with first hand experience in research design for development practice applications, including data collection and analysis. The course includes lectures, discussions, presentations, and project based learning. It is considered introductory as a single semester is insufficient to introduce, design, and conduct a comprehensive qualitative inquiry and analysis.

MDP 5100. Post-Field / Pre-Capstone Seminar. (; 1 cr. ; A-F only; Every Fall)
This project-focused seminar meets once at the beginning of the fall semester to collect observations, reflections and insights from the summer field placements. Then, throughout the fall semester, the seminar will meet periodically to stage the spring capstone course. Staging includes a capstone overview session, presentation of projects, team selection process and initial client engagements, the latter being particularly important for teams aspiring to travel during the winter or spring breaks.

MDP 5200. Capstone Workshop in Development Practice. (3 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Learning from field experiences. Analytical/ practical skills developed in academic training. Apply skill/experiences to "real world" problem provided by local or international development-focused organization. Reflective practice. prereq: MDP grad student or instr consent

Materials Science (MATS)

MATS 1001. Advances in Chemical Engineering and Materials Science. (; 1 cr. ; S-N or Audit; Every Fall)
Introduction to chemical engineering, materials science/engineering. Practical examples of important advances in both fields. Design problems, career opportunities. Lectures, demonstrations, interactive exercises. prereq: Credit will not be granted if credit has been received for: : ChEn 1001; Recommended for [chemical engineering, materials science/ engineering] majors

MATS 2001. Introduction to the Science of Engineering Materials. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Structure-property relationships of engineering materials. Atomic structure and bonding. Crystal structures. Imperfections in solids. Strength of materials, strengthening mechanisms. Phase transformations. Heat treatment/control of micro-structures. Materials selection/design. Integrating properties of metals, ceramics, polymers, and composites. prereq: CHEM 1061, CHEM 1065, [MATH 1272 or MATH 1372], PHYS 1301W, CSE student

MATS 2002. Introduction to the Science of Engineering Materials Laboratory. (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Lab experiments dealing with mechanical properties of engineering materials. Elastic modulus, tensile strength, creep, impact strength, fracture. prereq: [2001 or concurrent registration is required (or allowed) in 2001], IT student

MATS 3001. Thermodynamics of Materials. (; 3 cr. ; A-F or Audit; Every Fall)
Fundamental thermodynamic concepts, 1st, 2nd, 3rd Laws. Behavior of gases, liquids, solids. Phase diagrams. Reaction equilibria involving gases, condensed phases. Use of computer-based thermodynamic program(s). Electrochemistry. prereq: MatS upper div

MATS 3002. Mass Transport and Kinetics. (; 3 cr. ; A-F or Audit; Every Spring)
Mass transport in solids: solid state diffusion, Fick's laws, defects/diffusion mechanisms. Mass transport in fluids: fluid flow, diffusion with convection, mass transfer. Kinetics of chemical reactions and phase transformations. Computer-based problems illustrating applications. prereq: 4001, CE 3101, [MATH 2373 or equiv], upper div MatS

MATS 3011. Introduction to Materials Science and Engineering. (3 cr. ; Student Option; Every Fall & Spring)

Builds progressively from electrons to atoms to bonding to crystal structures. Defects, X-ray diffraction, phase diagrams. Microstructure as basis for understanding mechanical/electrical properties. Metals, polymers, ceramics, semiconductors, composites. prereq: CHEM 1061, CHEM 1065, [MATH 1272 or MATH 1372], PHYS 1302, CSE student

MATS 3012. Metals and Alloys. (3 cr. ; A-F or Audit; Every Fall)
Structure of metals/alloys. Crystal structure/defects (point defects, dislocations, grain boundaries). Microstructure. Properties of metals, especially mechanical properties. prereq: [3011, [MatS or ChEn upper div]] or instr consent

MATS 3013. Electrical and Magnetic Properties of Materials. (; 3 cr. ; A-F or Audit; Every Fall)
Electronic/magnetic properties of solids. Simple band theory of solids. Free electron theory of conductivity/transport. Optical/dielectric response functions. Elementary theory of magnetism. Electronic devices. Superconductivity. Computer-based problems to illustrate applications. prereq: 3011, [CHEM 4502 or PHYS 2303], [upper div MatS or ChEn] or instr consent

MATS 3041. Industrial Assignment I. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering co-op program. Formal report on technical project related to industrial work. prereq: MatS upper div, completion of required courses in MatS program through fall sem of 3rd yr, GPA of at least 2.80, regis in co-op program

MATS 3045. Materials Science and Engineering Industrial Internship. (1 cr. [max 2 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Industrial internship, three to eight months. Formal report on technical project related to industrial work. prereq: MatS Upper Division. GPA of at least 2.8.

MATS 3141. Numerical Methods for Materials Science. (3 cr. ; A-F only; Every Spring)
Mathematics and numerical/computation methods for Materials Science. Example problems include: diffusion problems; coupled diffusion/kinetics problems; nucleation, growth and crystallization; quantum mechanics/electrostatic problems relevant to electronic/magnetic/optical devices. The use of MatLab will be emphasized. prereq: Math 2374, MatS 3011 (or &) Coreqs: Math 2373, Chem 4502/Phys 2303

MATS 3801. Structural Characterization Lab. (; 4 cr. ; A-F only; Every Fall)
Characterization of structure of engineering materials by optical/electron microscopy, atomic force microscopy, x-ray diffraction, spectroscopic method, related methods. Crystallography, defects, microstructure, macromolecular structure. Specimen preparation, data collection/analysis, maintaining laboratory notebook. prereq: [3011, MatS upper div] or dept consent

MATS 3851W. Materials Properties Lab. (WI; 4 cr. ; A-F or Audit; Every Spring)
Characterization of properties of engineering materials. Mechanical, electrical, optical, magnetic, and thermal properties. Relationship between properties and materials structure. Specimen preparation. Data collection and analysis, including statistical analysis. Laboratory notebook and report writing. prereq: [3801, 3013, MatS upper div] or dept consent

MATS 4041. Industrial Assignment II. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial assignment in engineering co-op program. Application of materials science principles to engineering design problems in an industrial work environment. Formal written report and presentation. prereq: 3041, GPA of at least 2.80, registration in co-op program

MATS 4212. Ceramics. (3 cr. ; A-F or Audit; Every Fall)
Crystal structures, non-crystalline (glass) structures, microstructure. Ceramic phase relationships: binary/ternary diagrams. Ceramic properties: thermal, mechanical, electrical, magnetic, optical. Computer applications. prereq: [3011, [3001 or CHEN 3101], [MatS or ChEn upper div]] or instr consent

MATS 4214. Polymers. (; 3 cr. ; A-F or Audit; Every Spring)
Polymer structure-property relations: structure/morphology of crystalline/amorphous state. Crystallization kinetics. Vitrification and glass transition. Mechanical properties, failure, permeability, optical/electrical properties, polymer composites, effect of processing on properties. prereq: [3011, [3001 or CHEN 3101], [upper div MatS or ChEn]] or instr consent

MATS 4221. Materials Performance. (4 cr. ; A-F only; Every Fall)
Thermal/mechanical processing to control properties/other applications. Analysis of costs/performance, failure in metallurgical structures by use of fracture mechanics methodology. prereq: 3012, AEM 3031, Upper div MatS

MATS 4223W. Polymer Laboratory. (WI; 2 cr. ; Student Option; Every Spring)
Synthesis, characterization, and physical properties of polymers. Free radical, condensation, emulsion, anionic polymerization. Infrared spectroscopy/gel permeation chromatography. Viscoelasticity, rubber elasticity, crystallization.

MATS 4301W. Materials Processing. (WI; 4 cr. ; A-F only; Every Spring)
Casting, solidification and plastic forming of metals. Powder processing, forming operations, sintering of ceramics. Processing of thermoplastic/thermoset polymers. Computer applications of data collection/reduction. prereq: 4212, [4214 or concurrent registration is required (or allowed) in 4214] Upper Div MatS

MATS 4312. Principles and Applications of Solar Cells. (3 cr. ; A-F only; Every Fall)
This course begins with a discussion of current energy conversion and consumption before focusing on the working principles and applications of solar cells. Students will understand the operation of solar cells based on optical absorption, carrier generation and recombination, and charge separation in semiconductors. Several different materials platforms for solar cells are discussed including monocrystalline, thin film (inorganic, organic, and hybrid semiconductors), and tandem devices. Students will also develop an understanding of associated cost and economic considerations.

MATS 4400. Senior Design Project. (; 3 cr. ; A-F only; Every Spring)
Work in teams to apply expertise in materials science/engineering toward a specific project. With mentor from industry or faculty member guidance, each team defines a problem/follows design steps that culminate in a product design. prereq: Sr MatS major

MATS 4591. Independent Study in Materials Science. (; 1-3 cr. [max 6 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Library, theoretical, laboratory or design studies of scientific or engineering topics in materials science for an individual student. Course content and credits by arrangement with professor. Design credits available if arranged with professor. May be used for upper division Honors Program experience if arranged with professor. prereq: Upper div mat sci

MATS 4593. Directed Study in Materials Science. (; 1-4 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
This course can take two forms: (a) Library, theoretical or design studies of scientific or engineering topics in materials science for an individual or a small group of students. Course content and credits by arrangement with professor. Design credits available if arranged with professor. (b) Special topics course offered only once, e.g., by a visiting professor. prereq: upper div MatS

MATS 4594. Directed Research in Materials Science. (; 1-3 cr. [max 6 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Research studies of scientific or engineering topics in materials science for an individual or small group of students. Course content and credits by arrangement with professor. Design credits available if arranged with professor. May be used for upper division Honors Program experience if arranged with professor. prereq: Upper div mat sci

MATS 4594H. Directed Research - Honors. (; 1-4 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Independent lab research under faculty supervision for upper division students wanting honors experience. prereq: Instr and DUGS consent, upper div honor MatS major

MATS 5517. Microscopy of Materials. (; 3 cr. ; A-F or Audit; Periodic Spring)
An introduction to microscopy methods and techniques for materials characterization and is intended for junior- and senior-level undergraduates and graduate students interested in obtaining a basic introduction to materials microscopy methods. The modalities covered include polarized light microscopy,

scanning probe microscopies [atomic force microscopy (AFM) and scanning tunneling microscopy (STM)], scanning electron microscopy (SEM), transmission electron microscopy (TEM), and ancillary techniques of each. Topics include the description and operation of the various modalities (including hardware and software), basics of optical elements and image formation, fundamentals of electron-matter interactions, interpretation of diffraction patterns and image contrast, basics of microanalysis and spectroscopies, and specimen-preparation methods and requirements. Contemporary and state-of-the-art topics (e.g., in situ and environmental methods, time-resolved studies, high-resolution techniques, etc.) will be intermixed with the fundamentals of each modality.

MATS 5531. Electrochemical Engineering. (; 3 cr. ; Student Option; Periodic Fall)
Fundamentals of electrochemical engineering. Topics include electrochemical mass transfer electrokinetics, thermodynamics of cells, modern sensors, formation of thin films and microstructured materials. Computer-based problems will be assigned. prereq: MatS 3011 or instr consent, upper div CSE or grad

MATS 5771. Colloids and Dispersions. (; 3 cr. ; A-F or Audit; Every Fall)
Preparation, stability, coagulation kinetics, or colloidal solutions. DLVO theory, electrokinetic phenomena. Properties of micelles, other microstructures. prereq: Physical chemistry

Mathematics (MATH)

MATH 1001. Excursions in Mathematics. (MATH; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to the breadth and nature of mathematics and the power of abstract reasoning, with applications to topics that are relevant to the modern world, such as voting, fair division of assets, patterns of growth, and opinion polls. prereq: 3 yrs high school math or placement exam or [grade of at least C- in PSTL 731 or 732]

MATH 1031. College Algebra and Probability. (MATH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Graphs of equations and functions, transformations of graphs; linear, quadratic, polynomial, and rational functions, with applications; inverses and compositions of functions; exponential and logarithmic functions with applications; basic probability rules, conditional probabilities, binomial probabilities. prereq: 3 yrs high school math or satisfactory score on placement exam or grade of at least C- in [PSTL 731 or PSTL 732 or CI 0832]

MATH 1038. College Algebra and Probability Submodule. (; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
For students who need probability/ permutations/combinations portion of 1031. Meets with 1031, has same grade/work requirements. prereq: 1051 or 1151 or 1155

MATH 1042. Mathematics of Design. (MATH; 4 cr. ; Student Option; Every Fall)
A tour of mathematics relevant to principles of design that support the "making" of things: from objects to buildings. Project-based problem solving. Systems of equations, trigonometry, vectors, analytic geometry, conic sections, transformations, approximation of length, area, and volume. Prereq: Satisfactory score on placement test or grade of at least C- in [1031 or 1051]

MATH 1051. Precalculus I. (MATH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Graphs of equations and functions, transformations of graphs; linear, quadratic, polynomial, and rational functions with applications; zeroes of polynomials; inverses and compositions of functions; exponential and logarithmic functions with applications; coverage beyond that found in the usual 3 years of high school math. prereq: 3 yrs of high school math or satisfactory score on placement test or grade of at least C- in [PSTL 731 or PSTL 732 or CI 0832]

MATH 1142. Short Calculus. (MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
A streamlined one-semester tour of differential and integral calculus in one variable, and differential calculus in two variables. No trigonometry/does not have the same depth as MATH 1271-1272. Formulas and their interpretation and use in applications. prereq: Satisfactory score on placement test or grade of at least C- in [1031 or 1051]

MATH 1151. Precalculus II. (MATH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Properties of trigonometric functions and their inverses, including graphs and identities, with applications; polar coordinates, equations, graphs; complex numbers, complex plane, DeMoivre's Theorem; conic sections; systems of linear equations and inequalities, with applications; arithmetic and geometric sequences and series. prereq: Satisfactory score on placement exam or grade of at least C- in [1031 or 1051]

MATH 1155. Intensive Precalculus. (MATH; 5 cr. ; Student Option; Every Fall & Spring)
Graphs of equations and functions; polynomial and rational functions; inverses and composition of functions; exponentials and logarithms; trig functions, graphs, identities; polar coordinates; complex numbers; systems of linear equations; arithmetic, geometric sequences, series; applications. prereq: 3 yrs high school math or satisfactory score on placement exam or grade of at least C- in [PSTL 731 or PSTL 732]

MATH 1241. Calculus and Dynamical Systems in Biology. (MATH; 4 cr. ; Student Option; Every Fall & Spring)
Differential/integral calculus with biological applications. Discrete/continuous dynamical systems. Models from fields such as ecology/ evolution, epidemiology, physiology, genetic networks, neuroscience, and biochemistry. prereq: [4 yrs high school math including trig or satisfactory score on placement test or grade of at least C- in [1151 or 1155]], CBS student

MATH 1271. Calculus I. (MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Differential calculus of functions of a single variable, including polynomial, rational, exponential, and trig functions. Applications, including optimization and related rates problems. Single variable integral calculus, using anti-derivatives and simple substitution. Applications may include area, volume, work problems. prereq: 4 yrs high school math including trig or satisfactory score on placement test or grade of at least C- in [1151 or 1155]

MATH 1272. Calculus II. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Techniques of integration. Calculus involving transcendental functions, polar coordinates. Taylor polynomials, vectors/curves in space, cylindrical/spherical coordinates. prereq: [1271 or equiv] with grade of at least C-

MATH 1371. CSE Calculus I. (MATH; 4 cr. ; Student Option; Every Fall & Spring)
Differentiation of single-variable functions, basics of integration of single-variable functions. Applications: max-min, related rates, area, curve-sketching. Use of calculator, cooperative learning. prereq: CSE or pre-bioprod concurrent registration is required (or allowed) in biosys engn (PRE), background in [precalculus, geometry, visualization of functions/graphs], instr consent; familiarity with graphing calculators recommended

MATH 1372. CSE Calculus II. (; 4 cr. ; Student Option; Every Spring)
Techniques of integration. Calculus involving transcendental functions, polar coordinates, Taylor polynomials, vectors/curves in space, cylindrical/spherical coordinates. Use of calculators, cooperative learning. prereq: Grade of at least C- in [1371 or equiv], CSE or pre-Bioprod/Biosys Engr

MATH 1471. UM Talented Youth Mathematics Program--Calculus I, First Semester. (MATH; 2 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Accelerated honors-level sequence for selected mathematically talented high school students. Single variable calculus through differentiation and its applications.

MATH 1472. UM Talented Youth Mathematics Program--Calculus I, Second Semester. (MATH; 2 cr. [max 4 cr.] ; A-F or Audit; Every Spring)
Accelerated honors sequence for selected mathematically talented high school students. Integration and its applications.

MATH 1473. UM Talented Youth Mathematics Program--Calculus II, First Semester. (MATH; 2 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Accelerated honors sequence for selected mathematically talented high school students. Sequences and series, differential equations, 3D analytical geometry, and methods of proof.

MATH 1474. Honors Calculus IIB for Secondary Students. (; 3 cr. ; Student Option; Every Spring)
Accelerated honors sequence. Linear Algebra from geometric viewpoint. First-order systems of differential equations. prereq: 1473H

MATH 1571H. Honors Calculus I. (MATH; 4 cr. ; A-F only; Every Fall)
Differential/integral calculus of functions of a single variable. Emphasizes hard problem-solving rather than theory. prereq: Honors student and permission of University Honors Program

MATH 1572H. Honors Calculus II. (; 4 cr. ; A-F only; Every Spring)
Continuation of 1571. Infinite series, differential calculus of several variables, introduction to linear algebra. prereq: 1571H, honors student, permission of University Honors Program

MATH 2066. Elementary Differential Equations. (; 1-4 cr. ; Student Option;)
Not taught: merely provides credit for transfer students who have taken a sophomore-level differential equations class that does not contain enough linear algebra to qualify for credit for 2243.

MATH 2142. Elementary Linear Algebra. (; 4 cr. ; Student Option; Every Fall & Spring)
This course has three primary objectives. (1) To present the basic theory of linear algebra, including: solving systems of linear equations; determinants; the theory of Euclidean vector spaces and general vector spaces; eigenvalues and eigenvectors of matrices; inner products; diagonalization of quadratic forms; and linear transformations between vector spaces. (2) To introduce certain aspects of numerical linear algebra and computation. (3) To introduce applications of linear algebra to other domains such as data science. Objectives (2) and (3) will be taught with hands-on computer projects in a high-level programming language. Prerequisites: MATH 1272 or equivalent

MATH 2241. Mathematical Modeling of Biological Systems. (3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Development, analysis and simulation of models for the dynamics of biological systems. Mathematical topics include discrete and continuous dynamical systems, linear algebra, and probability. Models from fields such as ecology, epidemiology, physiology, genetics, neuroscience, and biochemistry. prereq: [1241 or 1271 or 1371] w/grade of at least C-

MATH 2243. Linear Algebra and Differential Equations. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Linear algebra: basis, dimension, matrices, eigenvalues/eigenvectors. Differential equations: first-order linear, separable; second-order linear with constant coefficients; linear systems with constant coefficients. prereq: [1272 or 1282 or 1372 or 1572] w/grade of at least C-

MATH 2263. Multivariable Calculus. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Derivative as linear map. Differential/integral calculus of functions of several variables, including change of coordinates using Jacobians. Line/surface integrals. Gauss, Green, Stokes Theorems. prereq: [1272 or 1372 or 1572] w/grade of at least C-

MATH 2283. Sequences, Series, and Foundations. (; 3 cr. ; Student Option; Every Fall & Spring)
Mathematical reasoning. Elements of logic. Mathematical induction. Real number system. General, monotone, recursively defined sequences. Convergence of infinite series/sequences. Taylor's series. Power series with applications to differential equations. Newton's method. prereq: [concurrent registration is required (or allowed) in 2243 or concurrent registration is required (or allowed) in 2263 or concurrent registration is required (or allowed) in 2373 or concurrent registration is required (or allowed) in 2374] w/grade of at least C-

MATH 2373. CSE Linear Algebra and Differential Equations. (; 4 cr. ; Student Option; Every Fall & Spring)
Linear algebra: basis, dimension, eigenvalues/eigenvectors. Differential equations: linear equations/systems, phase space, forcing/resonance, qualitative/numerical analysis of nonlinear systems, Laplace transforms. Use of computer technology. prereq: [1272 or 1282 or 1372 or 1572] w/grade of at least C-, CSE or pre-Bio Prod/Biosys Engr

MATH 2374. CSE Multivariable Calculus and Vector Analysis. (; 4 cr. ; Student Option; Every Fall & Spring)
Derivative as linear map. Differential/integral calculus of functions of several variables, including change of coordinates using Jacobians. Line/surface integrals. Gauss, Green, Stokes theorems. Use of computer technology. prereq: [1272 or 1282 or 1372 or 1572] w/grade of at least C-, CSE or pre-Bioprod/Biosys Engr

MATH 2471. UM Talented Youth Mathematics Program--Calculus II, Second Semester. (MATH; 2 cr. [max 4 cr.] ; A-F or Audit; Every Spring)
Accelerated honors sequence for selected mathematically talented high school students. Theoretical and geometric linear algebra.

MATH 2472. UM Talented Youth Mathematics Program--Calculus III, First Semester. (MATH; 2 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Accelerated honors sequence for selected mathematically talented high school students. Geometry of surfaces and curves in R^n. Multivariable calculus through differentation using linear algebra.

MATH 2473. UM Talented Youth Mathematics Program--Calculus III, Second Semester. (MATH; 2 cr. [max 4 cr.] ; A-F or Audit; Every Spring)
Accelerated honors sequence for selected mathematically talented high school students. Multivariable integration and classical vector analysis.

MATH 2474. Advanced Topics for Secondary Students. (; 3 cr. ; Student Option; Every Spring)
Topics may include linear algebra, combinatorics, advanced differential equations, probability/statistics, numerical analysis, dynamical systems, topology/geometry. Emphasizes concepts/explorations. prereq: 2473H

MATH 2573H. Honors Calculus III. (; 4 cr. ; A-F only; Every Fall)
Integral calculus of several variables. Vector analysis, including theorems of Gauss, Green, Stokes. prereq: Math 1572H or Math 2574H, honors student and permission of University Honors Program

MATH 2574H. Honors Calculus IV. (; 4 cr. ; A-F only; Every Spring)
Advanced linear algebra, differential equations. Additional topics as time permits. prereq: Math 1572H or Math 2573H, honors student and permission of University Honors Program

MATH 2999. Special Exam. (5 cr. ; Student Option;)

MATH 3283W. Sequences, Series, and Foundations: Writing Intensive. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to reasoning used in advanced mathematics courses. Logic, mathematical induction, real number system, general/monotone/recursively defined sequences, convergence of infinite series/sequences, Taylor's series, power series with applications to differential equations, Newton's method. Writing-intensive component. prereq: [concurrent registration is required (or allowed) in 2243 or concurrent registration is required (or allowed) in 2263 or concurrent registration is required (or allowed) in 2373 or concurrent registration is required (or allowed) in 2374] w/grade of at least C-

MATH 3584H. Honors Calculus IV: Advanced Placement. (; 5 cr. ; Student Option; Periodic Fall)
Advanced linear algebra, differential equations. Introduction to complex analysis. prereq: [2583 or equiv], IT Honors office approval

MATH 3592H. Honors Mathematics I. (; 5 cr. ; A-F only; Every Fall)
First semester of three-semester sequence. Focuses on multivariable calculus at deeper level than regular calculus offerings. Rigorous introduction to sequences/series. Theoretical treatment of multivariable calculus. Strong introduction to linear algebra. prereq: dept consent; for students with mathematical talent

MATH 3593H. Honors Mathematics II. (; 5 cr. ; A-F or Audit; Every Spring)
Second semester of three-semester sequence. Focuses on multivariable calculus at deeper level than regular calculus offerings. Rigorous introduction to sequences/series. Theoretical treatment of multivariable calculus. Strong introduction to linear algebra. prereq: 3592H or instr consent

MATH 4065. Theory of Interest. (; 4 cr. ; A-F only; Every Fall & Spring)
Time value of money, compound interest and general annuities, loans, bonds, general cash flows, basic financial derivatives and their valuation. Primarily for students who are interested in actuarial mathematics. prereq: 1272 or 1372 or 1572

MATH 4067W. Actuarial Mathematics in Practice. (WI; 3 cr. ; A-F only; Every Spring)
Real world actuarial problems that require integration of mathematical skills with knowledge from other disciplines such as economics, statistics, and finance.

Communication and interpersonal skills are enhanced by teamwork/presentations to the practitioner actuaries who co-instruct. prereq: 4065, ACCT 2050, ECON 1101, ECON 1102

MATH 4151. Elementary Set Theory. (3 cr. ; Student Option; Every Fall)
Basic properties of operations on sets, cardinal numbers, simply and well-ordered sets, ordinal numbers, axiom of choice, axiomatics. prereq: One soph math course or instr consent

MATH 4152. Elementary Mathematical Logic. (; 3 cr. ; Student Option; Every Spring)
Propositional logic. Predicate logic: notion of a first order language, a deductive system for first order logic, first order structures, Godel's completeness theorem, axiom systems, models of formal theories. prereq: one soph math course or instr consent

MATH 4242. Applied Linear Algebra. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Systems of linear equations, vector spaces, subspaces, bases, linear transformations, matrices, determinants, eigenvalues, canonical forms, quadratic forms, applications. prereq: 2243 or 2373 or 2573

MATH 4281. Introduction to Modern Algebra. (; 4 cr. ; Student Option; Periodic Fall)
Equivalence relations, greatest common divisor, prime decomposition, modular arithmetic, groups, rings, fields, Chinese remainder theorem, matrices over commutative rings, polynomials over fields. prereq: 2283 or 3283 or instr consent

MATH 4428. Mathematical Modeling. (; 4 cr. ; Student Option; Every Spring)
Modeling techniques for analysis/decision-making in industry. Optimization (sensitivity analysis, Lagrange multipliers, linear programming). Dynamical modeling (steady-states, stability analysis, eigenvalue methods, phase portraits, simulation). Probabilistic methods (probability/statistical models, Markov chains, linear regression, simulation). prereq: 2243 or 2373 or 2573

MATH 4512. Differential Equations with Applications. (; 3 cr. ; Student Option; Every Fall & Spring)
Laplace transforms, series solutions, systems, numerical methods, plane autonomous systems, stability. prereq: 2243 or 2373 or 2573

MATH 4567. Applied Fourier Analysis. (; 4 cr. ; Student Option; Every Fall & Spring)
Fourier series, integral/transform. Convergence. Fourier series, transform in complex form. Solution of wave, heat, Laplace equations by separation of variables. Sturm-Liouville systems, finite Fourier, fast Fourier transform. Applications. Other topics as time permits. prereq: 2243 or 2373 or 2573

MATH 4603. Advanced Calculus I. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Axioms for the real numbers. Techniques of proof for limits, continuity, uniform convergence. Rigorous treatment of differential/integral calculus for single-variable functions. prereq: [[2243 or 2373], [2263 or 2374]] or 2574 or instr consent

MATH 4604. Advanced Calculus II. (; 4 cr. ; Student Option; Every Spring)
Sequel to MATH 4603. Topology of n-dimensional Euclidean space. Rigorous treatment of multivariable differentiation and integration, including chain rule, Taylor's Theorem, implicit function theorem, Fubini's Theorem, change of variables, Stokes' Theorem. prereq: 4603 or 5615 or instr consent

MATH 4653. Elementary Probability. (; 4 cr. ; Student Option; Every Fall & Spring)
Probability spaces, distributions of discrete/continuous random variables, conditioning. Basic theorems, calculational methodology. Examples of random sequences. Emphasizes problem-solving. prereq: [2263 or 2374 or 2573]; [2283 or 2574 or 3283] recommended

MATH 4707. Introduction to Combinatorics and Graph Theory. (; 4 cr. ; Student Option; Every Fall & Spring)
Existence, enumeration, construction, algorithms, optimization. Pigeonhole principle, bijective combinatorics, inclusion-exclusion, recursions, graph modeling, isomorphism. Degree sequences and edge counting. Connectivity, Eulerian graphs, trees, Euler's formula, network flows, matching theory. Mathematical induction as proof technique. prereq: 2243, [2283 or 3283]

MATH 4990. Topics in Mathematics. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)

MATH 4991. Independent Study. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)

MATH 4992. Directed Reading. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
TBD

MATH 4993. Directed Study. (; 1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
TBD

MATH 4995. Senior Project for CLA. (; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Directed study. May consist of paper on specialized area of math or original computer program or other approved project. Covers some math that is new to student. Scope/topic vary with instructor. prereq: 2 sem of upper div math, dept consent

MATH 4997W. Senior project (Writing Intensive). (WI; 1 cr. [max 2 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Directed study. A 10-15 page paper on a specialized area, including some math that is new to student. At least two drafts of paper given to instructor for feedback before final version. Student keeps journal of preliminary work on project. Scope/topic vary with instructor. prereq: 2 sem upper div math, dept consent

MATH 5067. Actuarial Mathematics I. (; 4 cr. ; Student Option; Every Fall)
Future lifetime random variable, survival function. Insurance, life annuity, future loss random variables. Net single premium, actuarial present value, net premium, net reserves. prereq: 4065, [one sem [4xxx or 5xxx] [probability or statistics] course]

MATH 5068. Actuarial Mathematics II. (; 4 cr. ; Student Option; Every Spring)
Multiple decrement insurance, pension valuation. Expense analysis, gross premium, reserves. Problem of withdrawals. Regulatory reserving systems. Minimum cash values. Additional topics at instructor's discretion. prereq: 5067

MATH 5075. Mathematics of Options, Futures, and Derivative Securities I. (; 4 cr. ; Student Option; Every Fall)
Mathematical background (e.g., partial differential equations, Fourier series, computational methods, Black-Scholes theory, numerical methods--including Monte Carlo simulation). Interest-rate derivative securities, exotic options, risk theory. First course of two-course sequence. prereq: Two yrs calculus, basic computer skills

MATH 5076. Mathematics of Options, Futures, and Derivative Securities II. (; 4 cr. ; A-F or Audit; Every Spring)
Mathematical background such as partial differential equations, Fourier series, computational methods, Black-Scholes theory, numerical methods (including Monte Carlo simulation), interest-rate derivative securities, exotic options, risk theory. prereq: 5075

MATH 5165. Mathematical Logic I. (; 4 cr. ; Student Option; Every Fall)
Theory of computability: notion of algorithm, Turing machines, primitive recursive functions, recursive functions, Kleene normal form, recursion theorem. Propositional logic. prereq: 2283 or 3283 or Phil 5201 or CSci course in theory of algorithms or instr consent

MATH 5248. Cryptology and Number Theory. (; 4 cr. ; Student Option; Every Fall)
Classical cryptosystems. One-time pads, perfect secrecy. Public key ciphers: RSA, discrete log. Euclidean algorithm, finite fields, quadratic reciprocity. Message digest, hash functions. Protocols: key exchange, secret sharing, zero-knowledge proofs. Probablistic algorithms: pseudoprimes, prime factorization. Pseudo-random numbers. Elliptic curves. prereq: 2 sems soph math

MATH 5251. Error-Correcting Codes, Finite Fields, Algebraic Curves. (; 4 cr. ; Student Option; Every Spring)
Information theory: channel models, transmission errors. Hamming weight/distance. Linear codes/fields, check bits. Error processing: linear codes, Hamming codes, binary Golay codes. Euclidean algorithm. Finite fields, Bose-Chaudhuri-Hocquenghem codes, polynomial codes, Goppa codes, codes from algebraic curves. prereq: 2 sems soph math

MATH 5285H. Honors: Fundamental Structures of Algebra I. (; 4 cr. ; Student Option; Every Fall)
Review of matrix theory, linear algebra. Vector spaces, linear transformations over

abstract fields. Group theory, including normal subgroups, quotient groups, homomorphisms, class equation, Sylow's theorems. Specific examples: permutation groups, symmetry groups of geometric figures, matrix groups. prereq: [2243 or 2373 or 2573], [2283 or 2574 or 3283]

MATH 5286H. Honors: Fundamental Structures of Algebra II. (; 4 cr. ; Student Option; Every Fall & Spring)
Ring/module theory, including ideals, quotients, homomorphisms, domains (unique factorization, euclidean, principal ideal), fundamental theorem for finitely generated modules over euclidean domains, Jordan canonical form. Introduction to field theory, including finite fields, algebraic/transcendental extensions, Galois theory. prereq: 5285

MATH 5335. Geometry I. (; 4 cr. ; Student Option; Every Fall)
Advanced two-dimensional Euclidean geometry from a vector viewpoint. Theorems/problems about triangles/circles, isometries, connections with Euclid's axioms. Hyperbolic geometry, how it compares with Euclidean geometry. prereq: [2243 or 2373 or 2573], [concurrent registration is required (or allowed) in 2263 or concurrent registration is required (or allowed) in 2374 or concurrent registration is required (or allowed) in 2574]

MATH 5345H. Honors: Introduction to Topology. (; 4 cr. ; A-F only; Every Fall)
Rigorous introduction to general topology. Set theory, Euclidean/metric spaces, compactness/connectedness. May include Urysohn metrization, Tychonoff theorem or fundamental group/covering spaces. prereq: [2263 or 2374 or 2573], [concurrent registration is required (or allowed) in 2283 or concurrent registration is required (or allowed) in 2574 or concurrent registration is required (or allowed) in 3283]

MATH 5378. Differential Geometry. (; 4 cr. ; Student Option; Every Spring)
Basic geometry of curves in plane and in space, including Frenet formula, theory of surfaces, differential forms, Riemannian geometry. prereq: [2263 or 2374 or 2573], [2243 or 2373 or 2574]; [2283 or 3283] recommended]

MATH 5385. Introduction to Computational Algebraic Geometry. (; 4 cr. ; Student Option; Every Fall)
Geometry of curves/surfaces defined by polynomial equations. Emphasizes concrete computations with polynomials using computer packages, interplay between algebra and geometry. Abstract algebra presented as needed. prereq: [2263 or 2374 or 2573], [2243 or 2373 or 2574]

MATH 5445. Mathematical Analysis of Biological Networks. (; 4 cr. ; Student Option; Every Spring)
Development/analysis of models for complex biological networks. Examples taken from signal transduction networks, metabolic networks, gene control networks, and ecological networks. prereq: Linear algebra, differential equations

MATH 5447. Theoretical Neuroscience. (; 4 cr. ; Student Option; Every Fall)
Nonlinear dynamical system models of neurons and neuronal networks. Computation by excitatory/inhibitory networks. Neural oscillations, adaptation, bursting, synchrony. Memory systems. prereq: 2243 or 2373 or 2574

MATH 5467. Introduction to the Mathematics of Image and Data Analysis. (; 4 cr. ; Student Option; Every Spring)
Background theory/experience in wavelets. Inner product spaces, operator theory, Fourier transforms applied to Gabor transforms, multi-scale analysis, discrete wavelets, self-similarity. Computing techniques. prereq: [2243 or 2373 or 2573], [2283 or 2574 or 3283 or instr consent]; [[2263 or 2374], 4567] recommended

MATH 5485. Introduction to Numerical Methods I. (4 cr. ; Student Option; Every Fall)
Solution of nonlinear equations in one variable. Interpolation, polynomial approximation. Methods for solving linear systems, eigenvalue problems, systems of nonlinear equations. prereq: [2243 or 2373 or 2573], familiarity with some programming language

MATH 5486. Introduction To Numerical Methods II. (4 cr. ; Student Option; Every Spring)
Numerical integration/differentiation. Numerical solution of initial-value problems, boundary value problems for ordinary differential equations, partial differential equations. prereq: 5485

MATH 5525. Introduction to Ordinary Differential Equations. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Ordinary differential equations, solution of linear systems, qualitative/numerical methods for nonlinear systems. Linear algebra background, fundamental matrix solutions, variation of parameters, existence/uniqueness theorems, phase space. Rest points, their stability. Periodic orbits, Poincare-Bendixson theory, strange attractors. prereq: [2243 or 2373 or 2573], [2283 or 2574 or 3283]

MATH 5535. Dynamical Systems and Chaos. (; 4 cr. ; Student Option; Every Fall & Spring)
Dynamical systems theory. Emphasizes iteration of one-dimensional mappings. Fixed points, periodic points, stability, bifurcations, symbolic dynamics, chaos, fractals, Julia/Mandelbrot sets. prereq: [2243 or 2373 or 2573], [2263 or 2374 or 2574]

MATH 5583. Complex Analysis. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Algebra, geometry of complex numbers. Linear fractional transformations. Conformal mappings. Holomorphic functions. Theorems of Abel/Cauchy, power series. Schwarz' lemma. Complex exponential, trig functions. Entire functions, theorems of Liouville/Morera. Reflection principle. Singularities, Laurent series. Residues. prereq: 2 sems soph math [including [2263 or 2374 or 2573], [2283 or 3283]] recommended

MATH 5587. Elementary Partial Differential Equations I. (; 4 cr. ; Student Option; Every Fall)
Emphasizes partial differential equations w/physical applications, including heat, wave, Laplace's equations. Interpretations of boundary conditions. Characteristics, Fourier series, transforms, Green's functions, images, computational methods. Applications include wave propagation, diffusions, electrostatics, shocks. prereq: [2243 or 2373 or 2573], [2263 or 2374 or 2574]

MATH 5588. Elementary Partial Differential Equations II. (; 4 cr. ; A-F or Audit; Every Spring)
Heat, wave, Laplace's equations in higher dimensions. Green's functions, Fourier series, transforms. Asymptotic methods, boundary layer theory, bifurcation theory for linear/nonlinear PDEs. Variational methods. Free boundary problems. Additional topics as time permits. prereq: [[2243 or 2373 or 2573], [2263 or 2374 or 2574], 5587] or instr consent

MATH 5615H. Honors: Introduction to Analysis I. (; 4 cr. ; Student Option; Every Fall)
Axiomatic treatment of real/complex number systems. Introduction to metric spaces: convergence, connectedness, compactness. Convergence of sequences/series of real/complex numbers, Cauchy criterion, root/ratio tests. Continuity in metric spaces. Rigorous treatment of differentiation of single-variable functions, Taylor's Theorem. prereq: [[2243 or 2373], [2263 or 2374], [2283 or 3283]] or 2574

MATH 5616H. Honors: Introduction to Analysis II. (; 4 cr. ; Student Option; Every Spring)
Rigorous treatment of Riemann-Stieltjes integration. Sequences/series of functions, uniform convergence, equicontinuous families, Stone-Weierstrass Theorem, power series. Rigorous treatment of differentiation/integration of multivariable functions, Implicit Function Theorem, Stokes' Theorem. Additional topics as time permits. prereq: 5615

MATH 5651. Basic Theory of Probability and Statistics. (; 4 cr. ; Student Option; Every Fall & Spring)
Logical development of probability, basic issues in statistics. Probability spaces, random variables, their distributions/expected values. Law of large numbers, central limit theorem, generating functions, sampling, sufficiency, estimation. prereq: [2263 or 2374 or 2573], [2243 or 2373]; [2283 or 2574 or 3283] recommended.

MATH 5652. Introduction to Stochastic Processes. (; 4 cr. ; Student Option; Every Fall & Spring)
Random walks, Markov chains, branching processes, martingales, queuing theory, Brownian motion. prereq: 5651 or Stat 5101

MATH 5654. Prediction and Filtering. (; 4 cr. ; Student Option; Every Spring)
Markov chains, Wiener process, stationary sequences, Ornstein-Uhlenbeck process. Partially observable Markov processes (hidden Markov models), stationary processes. Equations for general filters, Kalman filter. Prediction of future values of partially

observable processes. prereq: 5651 or Stat 5101

MATH 5705. Enumerative Combinatorics. (; 4 cr. ; Student Option; Every Fall & Spring)
Basic enumeration, bijections, inclusion-exclusion, recurrence relations, ordinary/exponential generating functions, partitions, Polya theory. Optional topics include trees, asymptotics, listing algorithms, rook theory, involutions, tableaux, permutation statistics. prereq: [2243 or 2373 or 2573], [2263 or 2283 or 2374 or 2574 or 3283]

MATH 5707. Graph Theory and Non-enumerative Combinatorics. (; 4 cr. ; Student Option; Every Fall & Spring)
Basic topics in graph theory: connectedness, Eulerian/Hamiltonian properties, trees, colorings, planar graphs, matchings, flows in networks. Optional topics include graph algorithms, Latin squares, block designs, Ramsey theory. prereq: [2243 or 2373 or 2573], [2263 or 2374 or 2574]; [2283 or 3283 or experience in writing proofs] highly recommended; Credit will not be granted if credit has been received for: 4707

MATH 5711. Linear Programming and Combinatorial Optimization. (; 4 cr. ; Student Option; Every Fall & Spring)
Simplex method, connections to geometry, duality theory, sensitivity analysis. Applications to cutting stock, allocation of resources, scheduling problems. Flows, matching/transportation problems, spanning trees, distance in graphs, integer programs, branch/bound, cutting planes, heuristics. Applications to traveling salesman, knapsack problems. prereq: 2 sems soph math [including 2243 or 2373 or 2573]

MATH 5900. Tutorial in Advanced Mathematics. (; 1-6 cr. [max 120 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Individually directed study.

MATH 5990. Topics in Mathematics. (; 3-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Topics vary by instructor. See class schedule.

Mathematics Education (MTHE)

MTHE 3101. Mathematics and Pedagogy for Elementary Teachers I. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Math content knowledge of K-6 in an environment modeling pedagogy for future implementation. Integrated content/methods. Problem solving, connections, communication, reasoning, representation. Functions, proportionality, number, numeration. prereq: [College algebra, elementary FOE or Early Childhood student, jr status or above] or instr consent

MTHE 3102. Mathematics and Pedagogy for Elementary Teachers II. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Math content knowledge of K-6 in an environment modeling pedagogy for future implementation. Integrated content/methods. Problem solving, connections, communication, reasoning, representation. Geometry, measurement, probability, statistics. prereq: 3101, college algebra

MTHE 5011. Arithmetic Structures in School Mathematics. (; 3 cr. ; Student Option; Every Summer)
Pedagogy, content, and instructional strategies for teaching arithmetic. Content and issues relevant to the K-8 mathematics curriculum. Instructional materials and technology appropriate for elementary or middle school arithmetic. Credit hours and targeted level vary with particular classes. prereq: Enrollment in math initial licensure program or tchg exper

MTHE 5021. Algebraic Structures in School Mathematics. (; 3 cr. ; Student Option; Every Fall)
Pedagogy, content, and instructional strategies for teaching arithmetic. Content and issues relevant to the algebra curriculum. Instructional materials and technology appropriate for arithmetic. Each offering of the course will focus on either elementary/middle or middle/secondary grade levels. prereq: Tchg exper or isntr consent

MTHE 5031. Geometric Structures in School Mathematics. (; 3 cr. ; Student Option; Every Spring)
Pedagogy, content, and instructional strategies for teaching school geometry. Content and issues relevant to the geometry curriculum. Instructional materials and technology appropriate for geometry. Each offering will focus on either elementary/middle or middle/secondary grade levels. prereq: Enrollment in math initial licensure program

MTHE 5115. Applications of Teaching Mathematics. (3 cr. ; A-F only; Every Fall)
The purpose of this course is to examine mathematics teaching in diverse school settings and help you inquire and reflect about your own teaching practice and its impact on you, and the students you will meet. Throughout this course we will collaboratively inquire about teaching and learning, observe and analyze instruction, and reflect on your own and each other?s teaching. We will develop and integrate technological knowledge that works together with pedagogical and content knowledge to make math teaching more effective. prereq: You must be enrolled in the Mathematics initial licensure program to take this course.

MTHE 5155. Rational Number Concepts and Proportionality. (; 3 cr. ; Student Option; Fall Even Year)
The relationship between the development of rational number concepts and proportional reasoning skills. Examination of how newer school curricula treat these concepts. Application of materials in the classroom and analysis of results. Reading and responding to current research. prereq: Educ student or instr consent

MTHE 5171. Teaching Problem Solving. (; 3 cr. ; Student Option; Periodic Spring & Summer)
Investigation of fundamental concepts and principles of problem solving, reasoning, and proof. Emphasis on activities and applications appropriate for junior and senior high classes. Pedagogical experiences to prepare teachers to teach problem solving, reasoning, and proof in classrooms.

MTHE 5172. Teaching Probability and Statistics. (; 3 cr. ; Student Option; Fall Odd Year)
Investigation of fundamental concepts and principles of probability and statistics. Emphasis on activities and applications appropriate for junior and senior high school classes. Pedagogical experiences to prepare teachers to integrate quantitative literacy accurately and effectively in classrooms.

MTHE 5305. Middle School Mathematics Methods. (; 2 cr. ; A-F only; Every Fall)
The unique needs of middle school students in the mathematics classroom. Mathematics content and pedagogical skills. Adolescent development/psychology. Field placement in a middle school mathematics classroom. prereq: Elem ed licensure student

MTHE 5314. Teaching and Learning Mathematics. (; 3 cr. ; Student Option; Every Fall)
Methods, materials, and curriculum development. Principles of learning. Review of research. Preparation/evaluation of tests, units, and materials of instruction. Recent developments in mathematics curriculum and in instructional alternatives. Issues in teaching/learning. Program planning/evaluation. prereq: Math Ed or MEd or CI MEd or grad student or instr consent

MTHE 5355. Mathematics for Diverse Learners. (; 3 cr. ; Student Option; Every Fall & Spring)
Mathematical concepts and methods for exceptional students, both low achieving and gifted. Experimental materials and methods designed for underachieving students. prereq: Teaching license or student in elem ed or special ed or instr consent

MTHE 5366. Technology-Assisted Mathematics Instruction. (; 3 cr. ; Student Option; Every Spring)
Technology--including computers, programmable and graphing calculators, and video--as instructional tools in mathematics; design and evaluation of technology-based mathematics lessons; the effect of technology on the mathematics curriculum; managing the technology-enriched classroom.

MTHE 5696. Student Teaching in Mathematics. (; 1-8 cr. ; S-N only; Every Spring)
Student teaching in secondary school mathematics classes. prereq: MEd/initial licensure student or instr consent

MTHE 5993. Directed Studies in Mathematics Education. (; 2 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Secondary school classroom teaching project to improve specific teaching skills, planned by student, approved/directed by student's adviser. prereq: Math ed MEd student, instr consent

Mechanical Engineering (ME)

ME 2011. Introduction to Engineering. (; 4 cr. ; A-F or Audit; Every Fall)
Skills critical for practicing engineers. Mechanical engineering, engineering design. Visual, written, and oral communication forms. Computer-based design tools. Substantial design projects, including prototype construction. prereq: CSE lower div

ME 3041. Industrial Assignment I. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering intern program. Evaluation based on student's formal written report covering the quarter's work assignment. prereq: ME upper div, enrolled in ME co-op program

ME 3080. Topics in Mechanical Engineering. (; 1-4 cr. [max 16 cr.] ; Student Option; Periodic Fall & Spring)
Specialized topics within various areas of mechanical engineering. Topics vary each semester. prereq: dept consent

ME 3221. Fundamentals of Design & Manufacturing. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Material behavior and failure in design and manufacturing. Models for material removal, bulk deformation, sheet metal forming, and consolidation processes. Characterization of process capabilities and parts. prereq: 2011, AEM 3031, MatS 2001

ME 3222. Mechanisms & Machine Design. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Selection of standard mechanical components such as bearings, gears, and fasteners. Analysis and synthesis of motion in machines. Displacement, velocity, and acceleration of mechanisms. Machine design project: Apply lecture topics to develop new machines that fulfill customer specifications. prereq: [3221 or concurrent registration is required (or allowed) in 3221], [CSci 1113 or equiv]

ME 3281. System Dynamics and Control. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Dynamics of mechanical, electrical, thermal, fluid, and hybrid systems. System response using Laplace transform and numerical integration. Fourier transform and convolution. Transfer functions and frequency response. Introduction to classical control. prereq: AEM 2021, [Math 2243 or Math 2373], ME upper div

ME 3324. Introduction to Thermal Science. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Thermodynamics, heat transfer. Thermal properties of substances. First/second laws of thermodynamics. Steady/unsteady heat conduction. Thermal resistance concept. Convection heat transfer. Radiative heat transfer between solid surfaces. Boiling/condensation heat transfer. prereq: Chem 1061, Chem 1065, Math 2243 or Math 2373, Phys 1301, [CSE student]

ME 3331. Thermodynamics. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Properties, equations of state, processes, cycles for reversible and irreversible thermodynamic systems. Modes of energy transfer. Equations for conservation of mass, energy, entropy balances. Application of thermodynamic principles to modern engineering systems. prereq: Chem 1061, Chem 1065, Phys 1301

ME 3332. Fluid Mechanics. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Mass, momentum conservation principles. Fluid statics, Bernoulli equation. Control volume analysis, dimensional analysis, internal and external viscous flow. Momentum and energy considerations. Introduction to boundary layers. prereq: Math 2243 or Math 2373, 3331

ME 3333. Heat Transfer. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Mechanisms of heat transfer. Conduction, convection, radiation. Boundary layer analysis using momentum and energy equations. Applications such as fins, heat exchangers, electronics cooling, bioheat transfer, energy conversion technologies, phase change energy storage and boiling. prereq: 3332

ME 3990. Curricular Practical Training. (1 cr. [max 2 cr.] ; S-N only; Every Fall, Spring & Summer)
Industrial work assignment involving advanced mechanical engineering technology. Reviewed by faculty member. Final report covering work assignment. prereq: ME major

ME 4031W. Basic Mechanical Measurements Laboratory. (WI; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Experimental methods, statistical estimates of experimental uncertainty, calibration, signal conditioning, selected transducers for mechanical measurements, data acquisition/processing. Temperature, pressure, humidity, stress-strain, force, velocity, flow/radiative properties. prereq: IE 4521, upper div ME

ME 4043W. Industrial Assignment II. (WI; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Solution of system design problems that require developing criteria, evaluating alternatives, and generating a preliminary design. Final report emphasizes design communication and describes design decision process, analysis, and final recommendations. prereq: 3041

ME 4044. Industrial Assignment III. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Industrial work assignment in engineering co-op program. Evaluation based on student's formal written report covering semester work assignment. prereq: ME upper div, registration in ME co-op program

ME 4053. Mechanical Engineering Modeling. (4 cr. ; Student Option; Every Fall & Spring)
This course is aimed at teaching undergraduate students mechanical engineering modeling, technical analysis and technical design capabilities from a non-compartmentalized perspective. The course focuses on, (i) modeling complex, multi-disciplinary mechanical engineering problems by identifying critical elements of a problem, (ii) design and development of analysis tools using analytical and numerical techniques and (iii) developing optimized solutions/designs to problems/challenges. PREREQ: ME 3221, ME 3222, ME 3281, ME 3331, ME 3332, ME 3333

ME 4054W. Design Projects. (WI; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students work in teams and undertake single, substantial design project. Design problems are open-ended. Product design process. Teams give formal presentation of progress at mid-semester design review, show completed work at design show. prereq: 2011, 3221, 3222, 3281, 3331, 3332, 3333, 4031W, AEM 2021, AEM 3031, EE 3005, ME upper div

ME 4080. Topics in Mechanical Engineering. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall)
Topics vary each semester. prereq: ME upper div

ME 4081H. Mechanical Engineering Honors Thesis I. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Unstructured research course enabling honors students to do independent research supervised by faculty. Selection of suitable topics according to individual interests and faculty approval. Thesis and oral defense. prereq: ME upper div honors student, instr consent

ME 4082H. Mechanical Engineering Honors Thesis II. (WI; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Unstructured research course enabling honors students to do independent research supervised by faculty. Selection of suitable topics according to individual interests and faculty approval. Thesis and oral defense. prereq: ME upper div honors student, instr consent

ME 4090. Advanced Engineering Problems. (; 2-4 cr. ; Student Option; Every Fall, Spring & Summer)
Independent research project with faculty advisor in mechanical engineering, typically related to advisor's research interests. Student contacts advisor to develop project description well before project's start date. prereq: ME upper div, instr consent

ME 4131W. Thermal Environmental Engineering Laboratory. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Experiments in psychrometrics, refrigeration, air conditioning, solar energy, indoor air quality, and other topics related to refrigeration, building heating/cooling, and indoor air quality. prereq: 3332, 3333, 4031W, [ME upper div or grad student]

ME 4231. Motion Control Laboratory. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Microprocessor programming, digital filters, frequency response testing, modeling of eletromechanical systems, closed loop velocity and position control, programmable logic controllers, factory automation, open loop position control of a vibratory system using input shaping, closed loop position control using pole placement. prereq: 3281, 4031W, ME upper div

ME 4232. Fluid Power Control Lab. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Fluid power fundamentals. Description/operation of components. Fluid power symbols/circuits. Component sizing. Modeling/simulation, system identification, controller design/implementation. Connecting/making measurements on hydraulic circuits. Lab. prereq: 3281, 4031W, ME upper div

ME 4331. Thermal Energy Engineering Laboratory. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Measurement/analysis of heat transfer in single phase, multiphase, reacting environments. Experimental measurements relevant to thermal/fluid systems, statistical design of experiments/uncertainty analysis. Heat exchange. prereq: [3331, 3332, 3333, 4031W], [ME upper div or grad student]

ME 4431W. Energy Conversion Systems Laboratory. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Analyze operation/control of engines, power plants, heating/ventilation systems. Performance characteristics of devices, measurement techniques. Interpretation of experimental data. Presentation of results. prereq: 3333, 4031W, [ME upper div or grad student]

ME 4583. Design for Life: Water in Tanzania. (GP,TS; 3 cr. ; A-F only; Every Spring)
Teams will evaluate community needs and infrastructure to design potable water-handling systems in rural Tanzania, typically off the power grid. Fluid mechanics: complex distribution networks, system losses, pump selection, borehole development; field measurements. Designs must address Tanzanian design guidelines.

ME 5070. Topics in Mechanical Engineering. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Specialized topics within areas of mechanical engineering. Emphasis on topics of current interest. Topics vary each semester. prereq: CSE upper div or grad student

ME 5101. Vapor Power Cycles. (; 4 cr. ; A-F or Audit; Periodic Spring)
Vapor power cycle analysis, regeneration, reheat, compound cycle modifications, combined gas turbine--vapor cycle systems, components, fuels and combustion, heat sources -- solar, nuclear, geothermal, low T cycles, bottoming cycles, environmental concerns. EES software used extensively for cycle analysis. prereq: CSE upper div or grad student

ME 5103. Thermal Environmental Engineering. (; 4 cr. ; A-F or Audit; Every Fall)
Thermodynamic properties of moist air; psychrometric charts; HVAC systems; solar energy; human thermal comfort; indoor air quality; heating and cooling loads in buildings. prereq: 3331 or 3332, 3333, CSE upper div or grad

ME 5113. Aerosol/Particle Engineering. (; 4 cr. ; A-F or Audit; Every Fall)
Kinetic theory, definition, theory and measurement of particle properties, elementary particle mechanics, particle statistics; Brownian motion and diffusion, coagulation, evaporation and condensation, sampling and transport. prereq: CSE upper div or grad student

ME 5133. Aerosol Measurement Laboratory. (; 4 cr. ; A-F or Audit; Periodic Spring)
Principles of aerosol measurement. Single particle analysis by optical and electron microscopy. Aerosol samplers and inertial collectors. Integral mass concentration and number concentration detectors. Size distribution by laser particle counter and differential mobility particle sizer. Aerosol generation and instrument calibration. prereq: CSE upper div or graduate student

ME 5221. Computer-Assisted Product Realization. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Injection molding with emphasis on design of manufacturing processes. Tooling design and specification of processing conditions using computer-based tools; process simulation software and computer-controlled machine tools. Simultaneous process and part design. Production of tooling and parts. Part evaluation. prereq: 3221, AEM 3031, CSci 1113, MatS 2001

ME 5223. Materials in Design. (; 4 cr. ; Student Option; Every Fall)
Fundamental properties of engineering materials. Fabrication, treatment. Physical/corrosive properties. Failure mechanism, cost/value analysis as related to material selection/specification. prereq: 3221, ME upper division or grad student

ME 5228. Introduction to Finite Element Modeling, Analysis, and Design. (; 4 cr. ; A-F or Audit; Every Fall)
Finite elements as principal analysis tool in computer-aided design (CAD); theoretical issues and implementation aspects for modeling and analyzing engineering problems encompassing stress analysis, heat transfer, and flow problems for linear situations. One-, two-, and three-dimensional practical engineering applications. prereq: CSE upper div or grad, 3221, AEM 3031, CSci 1113, MatS 2001

ME 5229. Finite Element Method for Computational Mechanics: Transient/Dynamic Applications. (4 cr. ; A-F or Audit; Spring Odd Year)
Computational mechanics involving transient/dynamic situations for solids and structures, heat transfer, fluid flow, nano-mechanics and the like. Development and analysis of numerical methods and computational algorithms. Stability and accuracy of algorithms, convergence issues; linear/nonlinear situations. Implicit, explicit, mixed, and variable time discretization approaches; modal-based methods for engineering problems. CSE upper div or grad, CSCI 1113, ME 3221, ME 3333, ME 5228 or equiv

ME 5241. Computer-Aided Engineering. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Apply computer-aided engineering to mechanical design. Engineering design projects and case studies using computer-aided design and finite element analysis software; design optimization and computer graphical presentation of results. prereq: 3222, CSci 1113 or equiv, CSE upper div or grad

ME 5243. Advanced Mechanism Design. (; 4 cr. ; A-F or Audit; Periodic Summer)
Analytical methods of kinematic, dynamic, and kinetoelastodynamic analysis and synthesis of mechanisms. Computerized design for function, path, and motion generation based on Burmeister theory. prereq: CSE upper div or grad, 3222 or equiv, basic kinematics and dynamics of machines; knowledge of CAD packages such as Pro-E recommended

ME 5247. Stress Analysis, Sensing, and Transducers. (; 4 cr. ; A-F or Audit; Every Spring)
Electrical resistance strain gage theory and technology. Gage characteristics, selection, and use. Bridge circuits and temperature and stray strain compensation. Signal conditioning. Data analysis. Photoelasticity techniques. Interpretation of fringe patterns. Sensor principles and performance. Transducer design and characterization. prereq: AEM 3031, MatS 2001

ME 5248. Vibration Engineering. (; 4 cr. ; Student Option; Periodic Summer)
Apply vibration theory to design; optimize isolators, detuning mechanisms, viscoelastic suspensions and structures. Use modal analysis methods to describe free vibration of complex systems, relating to both theoretical and test procedures. prereq: CSE upper div or grad, 3281

ME 5281. Feedback Control Systems. (; 4 cr. ; Student Option; Every Fall)
Continuous and discrete time feedback control systems. Frequency response, stability, poles and zeros; transient responses; Nyquist and Bode diagrams; root locus; lead-lag and PID compensators, Nichols-Ziegler design method. State-space modeling/control. Digital implementation. Computer-aided design and analysis of control systems. prereq: 3281

ME 5286. Robotics. (; 4 cr. ; A-F or Audit; Every Spring)
The course deals with two major components: robot manipulators (more commonly known as the robot arm) and image processing. Lecture topics covered under robot manipulators include their forward and inverse kinematics, the mathematics of homogeneous transformations and coordinate frames, the Jacobian and velocity control, task programming, computational issues related to robot control, determining path trajectories, reaction forces, manipulator dynamics and control. Topics under computer vision include: image sensors, digitization, preprocessing, thresholding, edge detection, segmentation, feature extraction, and classification techniques. A weekly 2 hr. laboratory lasting for 8-9 weeks, will provide students with practical experience using and programming robots; students will work in pairs

and perform a series of experiments using a collaborative robot. prereq: [3281 or equiv], [upper div ME or AEM or CSci or grad student]

ME 5312. Solar Thermal Technologies. (; 4 cr. ; A-F or Audit; Spring Odd Year)
Solar radiation fundamentals. Measurement/ processing needed to predict solar irradiance dependence on time, location, and orientation. Characteristics of components in solar thermal systems: collectors, heat exchangers, thermal storage. System performance, low-temperature applications. Concentrating solar energy, including solar thermo-chemical processes, to produce hydrogen/solar power systems and photovoltaics. Solar design project. prereq: [3333, CSE upper Div] or grad student

ME 5332. Intermediate Fluid Mechanics. (3 cr. ; Student Option; Every Fall)
Bridge between introductory fluid mechanics and advanced graduate level course. Principles of incompressible and compressible flows, boundary layer theory, and analysis using differential formulations of the governing conservation equations. Analysis of phenomena relevant to the practice of engineering is emphasized through problem solving. Prereq: 3332 or equiv, CSE upper division or graduate student.

ME 5341. Case Studies in Thermal Engineering and Design. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Characteristics of applied heat transfer problems. Nature of problem specification, incompleteness of needed knowledge base, accuracy issues. Categories of applied heat transfer problems. prereq: 3333, CSE upper div or grad student

ME 5344. Thermodynamics of Fluid Flow With Applications. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Conservation of mass, momentum, energy. Relevant thermodynamic properties. Nozzles, diffusers, thrust producers, shocks. Fluid-wall frictional interactions. Wall heat transfer, internal heat release. Temperature recovery. Mass addition. Chemical thermodynamics/ applications. prereq: 3333, CSE upper div or grad student

ME 5351. Computational Heat Transfer. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Numerical solution of heat conduction/ analogous physical processes. Develop/use computer program to solve complex problems involving steady/unsteady heat conduction, flow/heat transfer in ducts, flow in porous media. prereq: 3333, CSE upper div or grad student

ME 5446. Introduction to Combustion. (; 4 cr. ; A-F or Audit; Every Fall)
Thermodynamics, kinetics, energy and mass transport, pollutants in reacting systems. Reactors, laminar and turbulent flames. Ignition, quenching, and flame stability. Diffusion flames. Combustion in reciprocating engines, furnaces, and turbines, with emphasis on internal combustion engine performance and emissions. prereq: 3331, 3332, 3333, CSE upper div or grad student

ME 5461. Internal Combustion Engines. (; 4 cr. ; A-F or Audit; Every Spring)
Basic spark ignition and diesel engine principles, air, fuel-air and actual engine cycles, cycle modeling, combustion and emissions, knock phenomena, air flow and volumetric efficiency, mixture requirements, ignition requirements and performance. Lectures/ complementary labs. prereq: CSE upper div or grad student, C or better in [3332, 3333] or 3324

ME 5462. Gas Turbines. (; 4 cr. ; A-F or Audit; Periodic Fall & Spring)
Gas turbine cycles, regeneration, recuperation, reheat, intercooling, combined cycle plants, and thermochemical regeneration. Axial and radial flow compressors and turbines; combustor designs, energy analysis, emissions, and noise. Turbojet, fanjet, turboprop engine performance. Stationary power plants, vehicular propulsion, hybrid vehicles. prereq: 3331, 3332, 3333, CSE upper div or grad student

ME 5666. Modern Thermodynamics. (; 4 cr. ; A-F only; Every Fall & Spring)
Applications of thermodynamics to natural phenomena. Multiscale approach. Student group projects, with undergrads and grad students in same group. Three hours/week classroom instruction, one hour/week project discussion. Project presentations at weeks 8 and 14 are webcast. prereq: 3331 or equiv

Medical Device Innovation (MDI)

MDI 5001. Technical Writing Essentials. (0-1 cr. ; A-F only; Every Fall)
This new core course focuses on the important skill to train MedTech professionals to communicate technical information to a broad audience in an effective manner. prereq: grad MDI major

MDI 5002. Technology Foresight and Forecasting. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Tools and techniques for technology forecasting, assessment, foresight for decision making in medical device industry. Topics include technology dynamics, research and development, portfolio management, and resource allocation. prereq: grad MDI major

MDI 5003. Technology Foresight & Forecasting Analytical Lab. (1 cr. ; A-F only; Every Fall)
This course is a continuation of MDI 5002: Technology Foresight & Forecasting and will afford students with an opportunity to complete the therapeutic area analysis they began in the summer semester, prepare a Powerpoint presentation in consultation with the instructor, and then present the results of their analysis to a group of MDI faculty. prereq: grad MDI major

MDI 5004. Clinical Foundations of Medical Device Innovation. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Master essential topics to deepen knowledge of Clinical Environment in which products will be conceived, tested, used. Topics include surgical protocols, physician, surgeon, nursing, technical support functions. Medical terminology, anatomy/physiology, ethnology research, Healthcare Law, Medicare/Medicaid, HIPAA requirements. prereq: MDI grad student. Non-MDI graduate students and non-degree graduate students may register for this course with permission of the MDI program.

MDI 5006. Finance, Valuation, and Entrepreneurship. (3 cr. ; A-F only; Every Summer)
Course provides students the opportunity to develop the entrepreneurial skills important in managing design, development, and commercialization of medical devices. Focuses on creating value within the organization, financial methods important to managers in technology-based organizations, and business plan development. Topics include budgeting capital, projecting financial needs, and managing working capital. Registration is limited to MDI students only.

MDI 5008. Quality, Regulatory and Manufacturing Management. (2 cr. ; A-F only; Every Spring)
Course provides students with understanding of the global regulatory environment in which the medical device industry operates. Students gain a fundamental understanding of critical quality systems regulations including ISO13485/ISO14971 and their relationship to the FDA's cGMP regulations. Students gain practical experience using tools that are essential to both product development and continuation/sustaining engineering including; design control procedures, FMEA, verification and validation, internal and external (supplier) management and audit methods. prereq: MDI graduate student only

MDI 5010. Product Innovation & Development Management. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Framework for conceptualization, design, development, commercialization process for medical products. Survey of key steps in innovation, from engineering/business perspective. Cross-functional development of concepts/processes. prereq: Grad MDI student. Non-MDI graduate students and non-degree graduate students may register for this course with permission of the MDI program.

MDI 5012. Medical Industry Macro Environment. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Application of macro environmental analysis to medical device industry. Methods reviewed. Industry-relevant case studies/macro environmental analysis of firms of interest. Political, economic, social, technological, legal, ecological factors that impact medical innovation. Prereq: MDI grad student. Non-MDI graduate students and non-degree graduate students may register for this course with permission of the MDI program.

MDI 5013. Medical Device Center Practicum I. (2 cr. ; A-F only; Every Fall, Spring & Summer)
First of three part series of practicum courses for MDI program. Focus on teaching innovation steps/process using known/pre-assigned

clinical needs as examples in collaboration with Medical Device Center. Essential steps in BioDesign process. Apply knowledge to specific real-world examples. prereq: Grad MDI student

MDI 5014. Medical Device Center Practicum II. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Second of three part series of practicum courses for MDI program. Clinical environment, including research tools/methods, filtering/ translating needs, ideation/prototype development, communication with functional managers, corporate executives/investors. prereq: Grad MDI student

MDI 5015. Medical Device Center Practicum III. (2 cr. ; A-F only; Every Spring)
Medical Device Innovation Practicum III is the third of a three part series. Students will gain a high-level understanding of essential steps in the BioDesign process related to ideation. The steps of the ideation process will include brainstorming and prototyping of potential solutions, risk assessment, and business strategy development. Students will prepare and present a technical evaluation that articulates the value of their new technology or device to functional managers, corporate executives, and/or investors. prereq: Grad MDI student

MDI 5020. Medical Device Innovation Capstone. (1-2 cr. ; A-F only; Every Spring & Summer)
The MDI capstone is an independent, original, and applied investigation on a relevant subject, problem, or issue in areas of medical device technologies, policy, business, and innovation. All students in the MDI program are required to complete a capstone project as part of the program. Registration is open to MDI students only.

MDI 5050. Interpersonal & Team Effectiveness. (1 cr. ; A-F only; Every Summer)
MDI 5050 builds the context and capability innovation leaders need to manage effective interpersonal relationships and develop high performance teams. Emphasis is placed on foundational principles and practices that help leaders self-manage, engage and influence key stakeholders, and generate shared commitment for team and project success. Students will increase their self-awareness through self and peer feedback and develop an action plan to enhance their leadership effectiveness in both their current work role and their MDI practicum teams. prereq: Grad MDI student

MDI 5051. Leading Innovation & Change. (1 cr. ; A-F only; Every Fall)
MDI 5051 explores the role and differentiating capabilities of outstanding innovation leaders in complex and dynamic environments. Emphasis is placed on principles and practices that help leaders focus on the right strategies, build the organizational capability required to execute a strategy, lead change initiatives and sustain commitment versus compliance among diverse stakeholders. Students will practice improving their team effectiveness and develop a change leadership plan to support implementation of either a current work initiative or their upcoming Capstone Project. prereq: Grad MDI Student and completion of MDI 5050.

MDI 5060. MDI Independent Study. (1-3 cr. ; A-F only; Periodic Fall, Spring & Summer)
Independent study in MDI-related topic. prereq: MDI grad student

Medical Industry Leadrshp Inst (MILI)

MILI 3585. Navigating the Healthcare Marketplace with Economic, Social and Policy Lenses. (SOCS; 3 cr. ; A-F only; Every Fall)
The healthcare marketplace constitutes over three trillion dollars in the United States and several trillion spent throughout the world. With growing demand for medical technology and the aging of the population, the scale and complexity of the healthcare supply chain is expected to dramatically increase over the next two decades. The healthcare sector is comprised of several markets for goods and services, including physician services, hospital services, insurance, pharmaceuticals and medical devices, and information technology. At the core of it all is healthcare consumers: us as patients, patient family members and caregivers. This course aims to 1) provide a historical evolution and social transformation of the healthcare sector, 2) critically review the current survey of the health economy, 3) discuss new health policy and reform initiatives and compare to international health system models. The overall goal is to provide an understanding of the scale and interactions between different health sector markets and consumers; to identify market opportunities and policy initiatives, as well as barriers to this expanding and global industry.

MILI 3589. Medical Technology and Society. (TS; 3 cr. ; A-F or Audit; Every Spring)
Course Description Innovations in medical technologies are one of the leading areas of economic growth in the world. Whether new technologies take the form of pharmaceutical, medical device, biotechnology, information technology of some combination of these innovations, the opportunities for both private enterprise and social welfare are substantial. However, these innovations are not without cost, and require reimbursement from either a privately or publicly financed health care delivery system. Thus, the demand for the evaluation of new medical technologies continues to grow as new treatments are developed and health care costs continue to rise. This course aims to provide knowledge of the skills, data, and methodology required to critically evaluate new medical technologies from a social perspective as well as from a business perspective in order to meet financial investment and regulatory compliance objectives. The course will provide an introduction to the analytic tool kit needed to critically evaluate new medical technologies including: 1. Understanding regulatory pathways such as the FDA approval 2. Understanding the U.S. payment policy & reimbursement for medical technology 3. Assessing unmet needs and the relevant market for the technology 4. Evaluating the social and economic value to convince payers to cover and reimburse the technology 5. Recognizing provider, healthcare organization and market-level factors that influence adoption of new medical technologies. Throughout the course, students will work on team-based hands-on exercises that will provide them gain further understanding of the impact of medical technology from the perspectives of an innovator, a regulator, a payer, a public entity, and consumers of the medical technology including physicians, hospitals, health systems and patients.

MILI 3963. Health Market Analytics. (3 cr. ; A-F only; Every Spring)
This course prepares students to analyze large health care databases with a focus on advanced applications with health insurance claims data. The course is designed to be a STEM offering with the use of statistical programming languages including R, Tableau, and SAS. This course is designed to appeal to students with an interest in developing data science as core skill and already have knowledge of some programming tools, and experience with data manipulation in Excel, SQL, or Access. Prerequisite: We recommended that students have a background in statistics. Consider MKTG 3005 - or STAT 3011 or equivalent course. We also recommend a previously taken class with Excel, R, SAS, SQL, or Access.

MILI 5995. Medical Industry Valuation Laboratory. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Interdisciplinary student teams create rapid production market analysis of promising medical technologies/services to determine potential for success in market. Exposure to University innovations, venture firms, inventors. prereq: instr consent

MILI 5999. Independent Study. (; 1-8 cr. [max 16 cr.] ; A-F only; Every Fall, Spring & Summer)
Independent study.

Medical Laboratory Sciences Pr (MLSP)

MLSP 1010. Introduction to Medical Laboratory Science. (; 1 cr. ; S-N only; Every Fall, Spring & Summer)
Introduction to medical laboratory sciences. Primary disciplines in field/areas of specialty practice. Career pathways explored in hospital laboratories, public health, research.

MLSP 2015. Medical Laboratory Scientist? s Vital Role in Patient Care. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to medical laboratory sciences and its critical role in health care. Discussion of basic functions of organ systems and laboratory tests associated with health and disease. Exploration of the profession through

case studies as well as career pathways and specialty areas of practice.

MLSP 3010. Topics in Medical Laboratory Science. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics shell. See title descriptions.

MLSP 5011W. Professional Issues in the Health Care Community. (WI; 2 cr. ; A-F only; Every Spring & Summer)
Current literature and written discussion to explore the laboratory profession: healthcare systems, professional scope of practice, regulatory and licensure issues, medical ethics, Interprofessional practice models and current topics impacting health care delivery. Focus is on the medical laboratory?s crucial role in patient care.

MLSP 5012. Foundations in Interprofessional Communication and Collaboration. (; 1 cr. ; A-F only; Every Fall)
Interprofessional approach to health care. Online discussion topics. Directed group activities. Personal/professional image, teamwork, self/peer assessment, health professions, professional identity and integrity, relationships between professions and those they serve. Introduction to basic education theory, instructional design for laboratory practitioners. prereq: Admission into MLS Program

MLSP 5013. Scholarly Inquiry and Analysis in Medical Laboratory Sciences. (; 1 cr. ; A-F only; Every Fall & Summer)
Review concepts of scientific inquiry. Major steps of research project. How to select topics, evaluate literature, and construct and test working hypothesis. Analyze and interpret data, report results. Quantitative, qualitative, and mixed methods research designs.

MLSP 5013H. Scholarly Inquiry and Analysis in Medical Laboratory Sciences - Honors. (; 2 cr. ; A-F only; Every Fall & Summer)
Introduction to scientific inquiry. Steps of research projects. Topic selection, literature evaluation, construct and test hypotheses. Analyze and interpret data, report results. Quantitative, qualitative, and mixed methods designs. Students select a clinical case study, research relevant literature, and write a publication quality article.

MLSP 5014W. Laboratory Operations and Management in Health Care Systems. (WI; 2 cr. ; A-F only; Every Fall & Summer)
Theory/practice of fiscal/personnel management for laboratory professionals. Includes introduction to laboratory information systems, legal aspects of test reporting. Government regulatory, certification, licensure, medical ethics of health care, accreditation policies. This is a writing intensive course and meets the campus wide requirement for an upper division, writing intensive course, in the major. prereq: Admission into MLS program or instr consent

MLSP 5111. Concepts of Diagnostic Microbiology. (3 cr. ; A-F only; Every Fall)
Presentation of medically significant human bacterial and yeast diseases. Epidemiology, physiology, and pathogenic interactions between man and microorganism. Laboratory regulations, morphological characteristics, laboratory testing, and mechanisms of antimicrobial therapy and resistance. prereq: [MICB 3301 or equivalent], [BIOC 3021 Biochemistry or equivalent] or instr consent

MLSP 5112. Application of Diagnostic Microbiology Principles. (2 cr. ; A-F only; Every Fall)
Application in identification and treatment of microorganisms causing human diseases. Emphasis on aerobic and anaerobic bacteria, mycobacteria, and yeast from various body sites. Specimen processing, culture workup, conventional microscopy, and molecular and immunological techniques.

MLSP 5113. Advanced Concepts in Diagnostic Microbiology. (3 cr. ; A-F only; Every Spring)
Physiology and pathogenic interactions between man and microorganism. Epidemiology, prevention, recovery, conventional, immunological, molecular identification, and methods and treatment of microorganisms involved in human diseases. prereq: 5111 or instr consent

MLSP 5211. Fundamentals in Hematology and Hemostasis. (3 cr. ; A-F only; Every Fall)
Anatomy and physiology of hematopoietic and coagulation systems. Basic blood cell morphology and common hematology and hemostasis tests. Clinical implications for health and disease. prereq: PHSL 3051 or instr consent

MLSP 5212. Application of Hematology & Hemostasis Principles. (1 cr. ; A-F only; Every Fall)
Theory, performance, and application of common hematologic and hemostatic diagnostic procedures. Interpretation and correlation of laboratory findings. Venipuncture, cell counting, white blood cell differential, red and white blood cell morphology interpretation, and coagulation studies. prereq: concurrent registration is required (or allowed) in 5211

MLSP 5213. Diagnostic Hematology. (3 cr. ; A-F only; Every Spring)
Blood and bone marrow in assessment of hematologic function and disease. Major focus on normal development and differentiation, abnormal changes found in disease. Cytochemical stains, flow cytometry, cytogenetics, molecular diagnostics. prereq: [5211, 5212] or instr consent

MLSP 5214. Advanced Hematology Morphology. (1 cr. ; A-F only; Every Spring)
Blood and bone marrow in assessment of hematologic function and presence of disease. Major focus on normal development and differentiation, abnormal changes in pathologic conditions. Cytochemical stains, flow cytometry, cytogenetics, molecular diagnostics. prereq: [5211, 5212, concurrent registration is required (or allowed) in 5213] or instr consent

MLSP 5311. Fundamental Biomedical Laboratory Techniques. (4 cr. ; A-F only; Every Spring & Summer)
Principles of good laboratory practice, experimental design/standard operating procedures, laboratory technical skills, safety, process control. Analytical techniques include colorimetry, chromatography, electrochemical, immunologic, nucleic acid techniques. prereq: 8 credits General Chemistry, 6 credits Organic Chemistry, 3 credits Biochemistry

MLSP 5312. Body Fluid Analysis. (; 2 cr. ; A-F only; Every Spring)
Formation of urine and body fluids, changes that occur in disease, testing used for diagnosis and treatment. Correlation of test results with clinical information discussed. Laboratory skills in body fluid analysis introduced. prereq: 8 credits General Chemistry, 6 credits Organic Chemistry, 3 credits Biochemistry, Successful completion of MLSP 5311 with grade of C or higher

MLSP 5313. Chemical Analysis in Health and Disease. (3 cr. ; A-F only; Every Fall)
Pathophysiology of organ systems and metabolic disorders. Liver, heart, kidney, lungs, diabetes. Health and disease states evaluated in context of clinical chemistry. prereq: 8 credits General Chemistry, 6 credits Organic Chemistry, 3 credits Biochemistry

MLSP 5511. Principles of Immunobiology. (3 cr. ; A-F only; Every Fall & Summer)
Immune system function, immunologic and serologic testing. Immunologic techniques utilized in various clinical laboratory settings. prereq: PHSL 3051 or instr consent

MLSP 5513. Transfusion Medicine Principles and Methods. (; 3 cr. ; A-F only; Every Spring)
Didactic material covering genetics, detection, significance of human blood group antigens and antibodies. Donor and compatibility testing. Component therapy, transfusion reactions. Hemolytic disease of fetus and newborn. Immune hemolytic anemias. Quality systems. Alternate technologies. prereq: [5511, upper level genetics course]or instr consent

MLSP 5514. Application of Transfusion Medicine Principles. (2 cr. ; A-F only; Every Spring)
Wet and dry laboratory exercises. Hemagglutination. Blood group antigen and antibody detection and identification. Direct antiglobulin testing. Compatibility testing. Gel and molecular methods. Titers. Hemolytic disease of fetus and newborn. Compatibility testing. Transfusion problems.

MLSP 5701. Clinical Experience in Microbiology. (2 cr. ; S-N only; Every Fall, Spring & Summer)
Gain practical experience, apply technical competencies learned on campus to microbiology laboratory. Develop entry-level competencies and assist in making transition to clinical practitioner. Guided by clinical preceptors and university faculty. prereq: Advanced standing in MLS program

MLSP 5702. Clinical Experience in Hematology and Hemostasis. (2 cr. ; S-N only; Every Fall, Spring & Summer)
Gain practical experience and apply technical competencies learned on campus to

hematology laboratory. Designed to develop entry-level competencies and assist students in making transition to clinical practitioner. Course guided by clinical preceptors and university faculty. prereq: Advanced standing in MLS program

MLSP 5703. Clinical Experience in Clinical Chemistry and Urinalysis. (2 cr. ; S-N only; Every Fall, Spring & Summer)
Gain practical experience and apply technical competencies learned on campus to Chemistry laboratory. Designed to develop entry-level competencies and assist student in making transition to clinical practitioner. Course guided by clinical preceptors and university faculty. prereq: Advanced standing in MLS program

MLSP 5704. Clinical Experience in Transfusion Medicine. (2 cr. ; S-N only; Every Fall, Spring & Summer)
Gain practical experience and apply technical competencies learned on campus to transfusion medicine lab. Designed to develop entry-level competencies and assist in making transition to clinical practitioner. Course guided by clinical preceptors and university faculty. prereq: Advanced standing in MLS program

MLSP 5801. Advanced Practicum Experience in Specialty Disciplines. (1 cr. ; S-N only; Every Fall, Spring & Summer)
Advanced practicum experience. Restricted enrollment. Students can select variety of specialty sub-disciplines of MLS including cytogenetics, flow cytometry, molecular diagnostics, toxicology, virology, education, management, research, public health, bone marrow tissue transplantation. prereq: Advanced standing in MLS program

Medical Physics (MPHY)

MPHY 5040. Introduction to Medical Physics. (3 cr. ; A-F only; Every Spring)
Interactions and energy deposition by ionizing radiation in matter; medical imaging; radiation therapy physics and related radiation safety topics.

MPHY 5138. Research Seminar. (; 1-5 cr. ; S-N or Audit; Every Fall)

MPHY 5139. Seminar and Journal Club. (; 1 cr. [max 2 cr.] ; S-N or Audit; Every Spring)
Current research/topics related to goals/ methods of biophysical sciences and medical physics. Lectures/discussions.

MPHY 5160. Advanced Radiation Physics and Dosimetry. (3 cr. ; A-F only; Every Fall)
Interactions and energy deposition by ionizing radiation in matter; concepts, quantities and units in radiological physics; principles and methods of radiation dosimetry.

MPHY 5170. Basic Radiological Physics. (; 3 cr. ; Student Option; Every Fall)
Theoretical/experimental aspects of radiological physics. Physical properties of various ionizing radiations, interactions of ionizing radiations with matter, methods of radiation dose measurement. prereq: instr consent

MPHY 5171. Medical and Health Physics of Imaging I. (; 3 cr. ; Student Option; Every Fall)
Physics of diagnostic imaging: specification/ quantification of image quality, X-ray production, image receptors, magnetic resonance imaging, radiation exposure and protection. Special imaging techniques, including mammography, computed tomography, and direct digital image capture. prereq: 5170 or instr consent

MPHY 5172. Radiation Biology. (; 3 cr. ; Student Option; Every Fall & Spring)
Effects of ionizing radiation on cells, tissues, and organisms. Biochemical/physiological bases of radiation effects. Biological rationale for radiation therapy practices. prereq: 5170 or instr consent

MPHY 5173. Medical and Health Physics of Radiation Therapy. (; 3 cr. ; Student Option; Every Spring)
Measurements of radiation quality, output, and depth dose distributions for clinical use. Treatment parameter calculation. Beam modification and shaping. Treatment planning for fixed field and rotational therapy in external beam, intracavitary, and interstitial therapy. Computer applications in treatment planning. Principles/criteria for radiation protection. prereq: 5170 or instr consent

MPHY 5174. Medical and Health Physics of Imaging II. (; 3 cr. ; Student Option; Every Spring)
Physics of diagnostic imaging. Ultrasound, theoretical/experimental applications of radionuclides in medicine and biology. Counting statistics and imaging systems associated with radiopharmaceuticals, radiation dosimetry, and safety in nuclear medicine. prereq: 5170 or instr consent

MPHY 5177. Radiation Therapy Physics Lab: Radiation Physics Basics. (; 3 cr. ; A-F only; Every Spring)
This course provides students hands-on experience with Hardware/software used in radiation therapy clinic for physics measurements. prereq: 5170 or concurrent registration is required (or allowed) in 5173 or instr consent

MPHY 5178. Physical Principles of Magnetic Resonance Imaging. (3 cr. ; Student Option; Spring Even Year)
Magnetic resonance imaging physics, spatial selection and encoding, imaging hardware and system engineering. Imaging sequences, signal-to-noise, and contrast.

Medicinal Chemistry (MEDC)

MEDC 5185. Principles of Biomolecular Simulation. (; 3 cr. ; Student Option; Periodic Fall)
Molecular simulation for students in medicinal chemistry, pharmaceutics, biochemistry, and chemical physics prereq: Chem 3502 or instr consent

MEDC 5245. Introduction to Drug Design. (; 3 cr. ; A-F or Audit; Every Fall)
Concepts that govern design/discovery of drugs. Physical, bioorganic, medicinal chemical principles applied to explain rational design, mechanism of action drugs. prereq: Chem

MEDC 5494. Advanced Methods in Quantitative Drug Analysis. (2 cr. ; A-F or Audit; Periodic Fall & Spring)
Quantitative methods (HPLC, GC, TLC, immunoassays) for analysis of drugs/ metabolites in biological fluids. Advanced techniques such as capillary electrophoresis, supercritical fluid chromatography, GC-MS, LC-MS, tandem mass spectrometry. Chromatographic theory/statistical approaches to method validation.

MEDC 5495. Vistas in Medicinal Chemistry Research. (; 1 cr. ; S-N or Audit; Every Fall)
Selected topics of contemporary interest in medicinal chemistry

Medieval Studies (MEST)

MEST 1002. Medieval Tales and their Modern Echoes. (GP,LITR; 3 cr. ; Student Option; Every Spring)
Knights of the Round Table, dragon-slayers, magic djinn, pilgrims in Hell. How these stories have been retold in modern fiction, film, and the arts. Texts from Europe and other regions of globe.

MEST 1081W. Martyrs, Monks, Crusaders: World Christianity, 100-1400. (GP,WI,HIS; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
This course surveys the history of Christianity from its status as a persecuted minority religion of the Roman Empire to its dominant role in medieval Europe and Byzantium. We study Christian traditions in Asia and Africa as well as Europe with special attention to the relationship between Christianity and culture in the ancient and medieval world.

MEST 3001. Introduction to Medieval History. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Europe from decline of Rome to early Renaissance. Politics, institutions, society, economy, and culture of Middle Ages.

MEST 3002. Medieval Tales and their Modern Echoes. (GP,LITR; 3 cr. ; Student Option; Every Spring)
Knights of the Round Table, dragon-slayers, magic djinn, pilgrims in Hell. How these stories have been retold in modern fiction, film, and the arts. Texts from Europe and other regions of globe.

MEST 3009. Medieval Art. (AH; 3 cr. ; Student Option; Every Fall & Spring)
Medieval art in Western Europe, from around 1000 to the mid-14th century. Works from France, Spain, Germany, Italy, and England examined in their historical context. Cross cultural relations, development of completely new forms of art and techniques, and the processes of realization.

MEST 3081W. Martyrs, Monks, Crusaders: World Christianity, 100-1400. (GP,WI,HIS; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
This course surveys the history of Christianity from its status as a persecuted minority religion

of the Roman Empire to its dominant role in medieval Europe and Byzantium. We study Christian traditions in Asia and Africa as well as Europe with special attention to the relationship between Christianity and culture in the ancient and medieval world.

MEST 3101. Survey of Medieval English Literature. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Major/representative Medieval English works, including Sir Gawain the Green Knight, Chaucer's Canterbury Tales, Piers Plowman, Book of Margery Kempe, Julian of Norwich's Revelations, and Malory's Morte D'Arthur.

MEST 3102. Chaucer. (3 cr. ; A-F or Audit; Every Fall & Spring)
Major/representative works written by Chaucer, including The Canterbury Tales, Troilus and Criseyde, and the dream visions. Historical, intellectual, and cultural background of the poems. Language, poetic theory, form.

MEST 3611. Medieval Cities of Europe: 500-1500. (GP,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Evolution of Western European cities from the late Roman town to the early Renaissance city-state.

MEST 3613. History of the Crusades. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Crusading spirit in Europe. Results of classic medieval crusades ca 1095-1285. States established by crusaders in Near East. Internal European crusades. Chronological prolongation of crusading phenomenon.

MEST 3616. France in the Middle Ages. (3 cr. ; Student Option; Periodic Fall)
Politics, society and culture in medieval France from the end of the Carolingians to the end of the Hundred Years War.

MEST 3617. Pagans, Christians, Barbarians: The World of Late Antiquity. (3 cr. ; A-F or Audit; Fall Odd Year)
Between classical and medieval, pagan and Christian, Roman and barbarian, the late antique world was a dynamic age. Course focuses on the Mediterranean region from the 2nd to the mid-7th century exploring such topics as the conversion of Constantine, the fall of Rome, barbarian invasions, the spread of Christianity, and the rise of Islam.

MEST 3993. Directed Studies in Medieval Studies. (; 1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Directed study with one of core faculty members of Medieval Studies program. prereq: Previous work in a medieval studies discipline, instr consent

MEST 4043. Romans, Anglo-Saxons and Vikings: Archaeology of Northern Europe. (3 cr. ; Student Option; Periodic Spring)
Archaeology of the British Isles, Scandinavia, and northern continental Europe, from the Romans through the Viking period. Themes to be examined include social and political organization, cross-cultural interactions, art and symbolism, and religion and rituals.

MEST 4612. Old English I. (3 cr. ; Student Option; Periodic Fall)
"I am learning Anglo-Saxon and it is a vastly superior thing to what we have now" (Gerard Manley Hopkins, letter to fellow poet Robert Bridges, 1882). This course is an introduction to the rich language and literature of Anglo-Saxon England (ca. 500-1100). "Old English," or as it is sometimes known, "Anglo-Saxon," is the earliest form of the English language; therefore, the primary course goal will be to acquire the ability to read Old English texts in the original. No previous experience with Old English or any other language is necessary or expected; undergraduates and graduate students from all departments are welcome. For graduate students in English, Old English I may count for the rhetoric/language/literacy distribution area. This course also fulfills the literary theory/linguistic requirement for the undergraduate English major. A knowledge of Old English will allow you to touch the most ancient literary sensibilities in the English tradition; these sensibilities are familiar and strange at the same time, as we sense our deep cultural connection to these texts across the centuries, yet also find that the past is a strange place indeed. The power of Old English literature has profoundly influenced authors such as Tennyson, Pound, Graves, Wilbur, Hopkins, Gunn, Auden, Seamus Heaney, C.S. Lewis, and of course, J.R.R. Tolkien.

MEST 4613. Old English II. (3 cr. ; Student Option; Periodic Spring)
The second semester of Old English is devoted to a full translation and study of the great Anglo-Saxon epic "Beowulf." J.R.R. Tolkien wrote of the poem that "its maker was telling of things already old and weighted with regret, and he expended his art in making keen that touch upon the heart which sorrows have that are both poignant and remote." "Beowulf" is an exciting tale of strife and heroism; but it is also a subtle meditation upon the character of humanity as it struggles to understand the hazards of a harsh world, the inscrutability of fate, and the nature of history itself. "Beowulf" is not only important for a detailed understanding of Anglo-Saxon culture, but it is also a significant and moving poetic achievement in the context of world literature. We will read and translate the poem in the original Old English; thus ENGL 4612 (or a similar course resulting in a basic reading knowledge of Old English) is a prerequisite. "Beowulf" has been the object of intensive scholarly study; we will delve into the debates over the poem's date, genesis, manuscript and historical context and critical interpretation. Spending an entire semester studying one complex work can be an invaluable experience. Please contact the instructor for any questions concerning the prerequisite.

MEST 5610. Advanced Topics in Medieval Studies. (; 3-4 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
From late antiquity through end of Middle Ages (circa 300-1500 A.D.). Topics specified in Class Schedule. prereq: One yr work in some area of Middle Ages, reading knowledge of appropriate language.

MEST 5993. Directed Studies in Medieval Studies. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Directed study with one of the core faculty of medieval studies program. prereq: One yr work in some area of Middle Ages, reading knowledge of appropriate language, instr consent

Microbial Engineering (MICE)

MICE 5035. Personal Microbiome Analysis. (3 cr. ; Student Option; Every Spring)
Personal Microbiome Analysis, an introduction to the computational exploration and analysis of your inner microbial community, also known as your microbiome. In this course, you will have the opportunity to explore your own microbiome using visualization and analysis tools. Sequencing your own microbiome is encouraged but not required for the course. Introductory biology or genetics is recommended: BIOL 1009, GCD 3022 or BIOL 4003.

MICE 5355. Advanced Fermentation and Biocatalysis Laboratory. (1 cr. ; S-N only; Every Spring)
Methods in industrial microbiology, lab, and pilot scale fermentation/biocatalysis engineering. Lab experiments carried out in fermentation pilot plant. Operation of bench/ pilot scale bioreactors. Designing bioreactors. Process optimization, monitoring, and control. Scale-up experiments, data analysis. prereq: [3301 or BIOL 3301], [grad student in microbial engineering or upper-div major in [microbiology or chem engineering or biochemistry]], instr consent

Microbiol/Immun/Cancer Biology (MICA)

MICA 5000. Practicum: Teaching. (; 0 cr. ; No Grade Associated; Every Fall & Spring)
Supervised experience in lab instruction. Use of instructional materials, tests/measurement.

Microbiology (MICB)

MICB 3301. Biology of Microorganisms. (5 cr. ; A-F only; Every Fall, Spring & Summer)
Taxonomy, anatomy, physiology, biochemistry, pathogenesis, immunology, ecology of microbes. Molecular structure in relation to bacterial function/disease. Includes lab. prereq: BIOL 3020 or BIOC 3021 or GCD 3022 or instructor consent (biochemistry/molecular biology background coursework)

MICB 3302. Biology of Microorganisms Laboratory. (2 cr. ; A-F only; Every Fall, Spring & Summer)
This is a hands-on laboratory that together with MICB 3303 will provide an extensive overview of the microbial world highlighting the structure, function, and diversity of microorganisms including bacteria, fungi, protists, and viruses. In laboratory, students will get hands-on experience with the techniques, methods, protocols, and instrumentation for the study of microorganisms that will coincide with

what is taught in the lecture component. The combination of MicB 3303 (lecture only) and MicB 3302 (lab only) is equivalent to MicB 3301. No credit if credit already received for MicB 3301.

MICB 3303. Biology of Microorganisms. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Taxonomy, anatomy, physiology, biochemistry, pathogenesis, infectious disease, immunology, ecology of microbes. Molecular structure in relation to function of bacteria, fungi, protozoa, viruses. prereq: BIOL 3020 or Biochemistry (BioC 3021] or instructor consent

MICB 4131. Immunology. (3 cr. ; Student Option; Every Fall)
Molecular, genetic and cellular basis for innate and adaptive immune responses. The immune systems role in; transplantation, autoimmune disease, cancer immunotherapy, vaccinololgy, acquired and genetic immunodeficiencies. recommended prereqs: microbiology, biochemistry, cell biology

MICB 4151. Molecular and Genetic Bases for Microbial Diseases. (3 cr. ; Student Option; Every Spring)
Genetic basis of microbial pathogenesis. Effect of gene transfer and regulation on evolution of microbial pathogens and capacity to colonize, induce disease. Biochemical and cellular interactions between bacteria and human hosts. prereq: MicB 4131 and BioC 3021 advised

MICB 4161W. Eukaryotic Microbiology. (WI; 3 cr. ; A-F only; Every Fall)
Cell biology of higher eukaryotes, animal/plant pathogenesis, evolution, industrial microbiology. Tetrahymena/Chlamydomons/Paramecium/Toxoplasma/Aspergillus/Neurospora. prereq: 3301, [GCD 3022 or Biol 4003]

MICB 4171. Biology, Genetics, and Pathogenesis of Viruses. (3 cr. ; A-F only; Every Spring)
Structure, attachment, entry. Genome replication/mRNA production by RNA viruses. Reverse transcription. DNA virus templates. Replication of DNA virus genomes. Processing of viral pre-mRNA. Translational control. Assembly, host defense, tumor viruses, pathogenesis, HIV, antivirals. prereq: [MicB 3301 or Biol 4004] AND [Biol 3020 OR Biol 4003] AND [MicB 4131 or instr consent]; seats are prioritized for CBS majors (others who meet the course prerequisites can contact the instructor for permission)

MICB 4215. Advanced Laboratory: Microbial Physiology and Diversity. (; 3 cr. ; A-F or Audit; Every Fall)
Isolation/cultivation of wide variety of bacteria. Physiological experiments illustrate characteristic features of microorganisms. prereq: 3301 or Biol 2032 or VBS 2032 or intro microbiology course with lab

MICB 4225W. Advanced Laboratory: Microbial Genetics. (WI; 3 cr. ; A-F only; Every Fall)
Yeast is used as a model organism for microbial molecular genetic principles and methods such as ultraviolet mutagenesis, isolation and creation of mutant strains, plasmid design and construction, PCR, Sanger sequencing, gene replacement and bioinformatics. Students will design and execute their own independent research project using hands-on experimentation with advanced molecular methods prereq: 3301, BIOL 4003

MICB 4235. Advanced Laboratory: Virology, Immunology, and Microbial Genetics. (3 cr. ; Student Option; Every Spring)
Techniques, experimental methods in microbial genetics, immunology. Virology used to study microbes/interactions with host. prereq: 3301, 4131, BIOC 3021, [completed or concurrent registration is required in MicB 4141W/4171]; access from a wait list

MICB 4793W. Directed Studies: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. One main feature of this course is that the student will receive writing instruction and the written output of the course will be revised during the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

MICB 4794W. Directed Research: Writing Intensive. (WI; 1-7 cr. [max 15 cr.] ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

MICB 4993. Directed Studies. (; 1-7 cr. [max 36 cr.] ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

MICB 4994. Directed Research. (1-7 cr. [max 28 cr.] ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a Research/Directed Studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7

credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

Military Science (MIL)

MIL 1003. Military Science I Leadership Lab. (1 cr. ; A-F only; Every Fall)
Basic skills. Preview advanced course. Team-building leadership skills. prereq: concurrent registration is required (or allowed) in 1201

MIL 1101. Introduction to the Army and Critical Thinking. (; 1 cr. ; A-F only; Every Fall)
Introduces cadets to the personal challenges and competencies that are critical for effective leadership. Cadets learn how the personal development of life skills such as critical thinking, goal setting, time management, physical fitness, and stress management relate to leadership, officership, and the Army profession.

MIL 1102. Introduction to the Profession of Arms. (; 1 cr. ; A-F only; Every Spring)
Leadership fundamentals such as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Cadets explore dimensions of leadership attributes and core leader competencies in the context of practical, hands-on, and interactive exercises.

MIL 1104. MS I One Credit Lead Lab. (; 1 cr. ; A-F only; Every Spring)
Army ROTC leadership and personal development lab. prereq: concurrent registration is required (or allowed) in 1102

MIL 1201. Leadership and Decision Making. (; 2 cr. ; A-F only; Every Fall)
The outcomes of MIL 1201 are demonstrated through Critical and Creative Thinking and the ability to apply Troop Leading Procedures. Comprehension of the officer's role in leading change by applying innovative solutions to problems in concert with the principles of mission command. The Army profession is also stressed through leadership forum and a leadership self-assessment. prereq: concurrent registration is required (or allowed) in lab

MIL 1202. Army Doctrine and Team Development. (; 2 cr. ; A-F only; Every Spring)
MIL 1202 begins the journey to understand and demonstrate cross-cultural competencies as they relate to Army doctrine and how they apply in a combatant commander? s engagement strategies. Army values, teamwork, and Warrior Ethos and their relationship to the Law of Land Warfare and philosophy of military service are also stressed. The ability to lead and follow is also covered through team building exercises in small units up to squad level. prereq: Must enroll in lab.

MIL 1203. MS II One Credit Lead Lab. (; 1 cr. ; A-F only; Every Fall)
Army ROTC leadership and personal development lab. prereq: concurrent registration is required (or allowed) in 1201

MIL 1204. MS II One Credit Lead Lab. (; 1 cr. ; A-F only; Every Spring)
Army ROTC leadership and personal development lab. prereq: concurrent registration is required (or allowed) in 1202

MIL 3301. Training Management and Warfighting Functions. (; 3 cr. ; A-F only; Every Fall)
MIL 3301 includes introduction to squad/platoon tactical operations using troop leading procedures and battle drills to achieve the assigned mission within the commander's intent. Through the introduction of the leadership lab practicum the cadets learn to plan, resource, and execute training of subordinates within the leadership labs. This experience gives the cadet the opportunity to work on their teamwork and leadership skills in a hands-on performance-oriented environment. prereq: Two yrs of ROTC or equiv established by U.S. Army, must see Army ROTC dept officials, concurrent registration is required (or allowed) in lab

MIL 3302. Applied Leadership in Small Unit Operations. (; 3 cr. ; A-F only; Every Spring)
MIL 3302 balances adaptability and professional competence building on the tactical lessons introduced in MIL 3301. Adaptability concepts introduced include analysis of complex problems, creating solutions that exhibit agile and adaptive thinking, analysis of the environment and formulation of solutions to tactical and organizational problems. prereq: Two yrs of ROTC or equiv established by U.S. Army, must see Army ROTC dept officials, concurrent registration is required (or allowed) in lab.

MIL 3303. MS III One Credit Lead Lab. (; 1 cr. ; A-F only; Every Fall)
Army ROTC leadership and personal development lab. prereq: Completion of basic courses, concurrent registration is required (or allowed) in 3301

MIL 3304. MS III One Credit Lead Lab. (; 1 cr. ; A-F only; Every Spring)
Army ROTC leadership and personal development lab. prereq: Completion of basic courses, concurrent registration is required (or allowed) in 3302

MIL 3401. The Army Officer. (; 3 cr. ; A-F only; Every Fall)
MIL 3401 places primary emphasis on officership with the MS IV cadets, who are the educational main effort within the Battalion. MIL 3401 and 3402 together refine and ultimately complete the cadet-to-commissioned officer transition. Mission command and ethics are stressed to assist the cadet in further embracing their role as a future army officer. prereq: Completed all other military courses or Army equiv, concurrent registration is required (or allowed) in lab

MIL 3402. Company Grade Leadership. (; 3 cr. ; A-F only; Every Spring)
MIL 3402 is the culmination of a four-year sequential, progressive, challenging developmental leadership experience. It is during this final semester that the cadet is undergoing final preparation for the duties and responsibilities of a commissioned officer along with their integration into the army. Emphasis is placed on critical knowledge, skills, abilities and competency skills newly commissioned officers will need to succeed in their first unit of assignment, and the modern operating environment where they will be expected to plan, prepare, execute, and assess platoon-level training strategies and more to enable mission accomplishment. prereq: Completion of all other military courses or Army equiv, concurrent registration is required (or allowed) in lab

MIL 3403. MS IV One Credit Lead Lab. (; 1 cr. ; A-F only; Every Fall)
Army ROTC leadership and personal development lab. prereq: Completion of basic courses, concurrent registration is required (or allowed) in 3401

MIL 3404. MS IV One Credit Lead Lab. (; 1 cr. ; A-F only; Every Spring)
Army ROTC leadership and personal development lab. prereq: Completion of basic courses, concurrent registration is required (or allowed) in 3402

MIL 3501. Marksmanship Training Programs. (; 2 cr. ; A-F only; Every Fall & Spring)
Uses a laser-simulated Army rifle to train on how to fire weapons accurately. Students learn how to operate the computer-based simulation system as well as practical exercises of firing at targets on a video screen.

MIL 3502. Marksmanship Training Programs. (; 2 cr. ; A-F only; Every Fall & Spring)
Basic rifle marksmanship skills. Students instruct/train other students.

MIL 3555. Applied Military Learning. (; 0-3 cr. [max 6 cr.] ; A-F only; Periodic Fall)
This course is only offered to Military Science level 5 with special permission. This course allows you the opportunity to apply the tactical and technical skills you have learned throughout your Military Science classes and Military Experience to assist in the duties of the cadre. prereq: Must successfully complete or receive constructive credit for all Military Science classes: MIL 1101, MIL 1102, MIL 1201, MIL 1202, MIL 3301, MIL 3302, MIL 3401, MIL 3402

MIL 3970. Military History. (; 3 cr. ; A-F only; Every Fall & Spring)
General overview of all wars fought by United States from the 18th century Revolutionary War to today's War on Terror. Military tactics as well as war's impact on society. Two exams, two papers to write, readings.

Mortuary Science (MORT)

MORT 2171. Introductory Anatomy. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Study of the human body systems and functions in a systemic approach with an emphasis placed on providing a foundation for funeral service preparation in the areas of embalming and restorative art. Systems covered include integumentary, skeletal, muscular, nervous, endocrine, cardiovascular,

lymphatic, respiratory, digestive, urinary, and reproductive. Pre- / co-requisite: Medical Terminology

MORT 3012W. Organization and Management of Funeral Business. (WI; 3 cr. ; A-F only; Every Fall)
How to create an entrepreneurial marketing strategy and business plan for a small funeral business. Various forms of ownership. Financial requirements, risk management, human resources management. Theory supplemented with practical information, real-life experiences. Prerequisites: Diversified Core Mathematical Thinking, ACCT 2050: Introduction to Financial Reporting

MORT 3014. Funeral Service Rules and Regulations. (2 cr. ; A-F only; Every Fall, Spring & Summer)
Licensing/government regulations, compliance with regulations of state/federal regulatory agencies, cemetery and crematory rules and regulations, and Federal Trade Commission Funeral Practice Rule for the funeral industry.

MORT 3016. Funeral Service Marketing and Merchandising. (; 3 cr. ; A-F or Audit; Every Spring)
Introduction to key elements of funeral service merchandising/marketing. How to manage delivery process. Theory supplemented with contemporary product offerings, merchandising techniques.

MORT 3018. Funeral Service Practice I. (3 cr. ; A-F only; Every Fall)
A study of the practice of funeral service, the conduct of funerals in the diverse American society; various survivor benefits including Social Security, Veterans benefits, active military benefits, and others; private and National cemetery familiarization, including eligibility; merchandise familiarization

MORT 3019. Funeral Service Practice II. (3 cr. ; A-F only; Every Spring)
The purpose of this course is to provide students with a multidisciplinary perspective on information, issues and problems associated with, and relating to, the contemporary practice of funeral service. Building upon the foundational theories, definitions and activities presented in complementary mortuary science courses, this class is designed to deepen students' understanding of how funeral service is practiced in a variety of different contexts today from the perspectives of multiple stakeholders.

MORT 3021W. Funeral Service Psychology and Arrangements Theory. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course instructs students in grief psychology principles as they relate to funeral service, as well as principles underlying successful funeral arrangements. Coursework includes psychology, counseling, and communication principles, as well as an introduction to helping skills, communication techniques, and other tools to conduct funeral arrangements with diverse client families. Particular emphasis is placed on adapting these tools to a variety of arrangement factors, including disposition type, family dynamics, veteran status, and religious affiliation. Coursework is delivered and assessed via readings, lectures, in-class role-playing, writing-to-learn activities, quizzes, tests, discussions, qualitative research, and reflective writing assignments. Prerequisites: WRIT 1301, PSY 1001, COMM 3401 or COMM 3402

MORT 3022W. Funeral Service Arrangements Laboratory. (WI; 4 cr. ; A-F only; Every Fall & Spring)
This course provides students with practical tools to conduct funeral arrangements with diverse client families. Coursework includes application of MORT 3021W material, group discussion, and laboratory-based application of skills. Each student will conduct a simulated arrangement with a community volunteer based on real-world arrangement scenarios. Delivery and assessment of coursework will be via readings, lectures, in-class role-playing, quizzes, tests, writing-to-learn activities, and reflective writing assignments. Prerequisites: MORT 3021W, MORT 3014

MORT 3025. Business Law. (; 3 cr. ; A-F only; Every Fall)
Principles of business law relating to funeral service. U.S. judicial system. Contracts. Sales. Bailments (including carriers). Commercial paper. Agency. Employment. Business organization.

MORT 3031. Funeral Service Law. (; 2 cr. ; A-F only; Every Spring)
Duty of burial. Right to control funeral arrangements. Final disposition, liability for funeral expenses. Torts involving dead human body and the funeral director. Wills. Estates. Probate. Prerequisites: MORT 3025: Business Law

MORT 3048. Microbiology and Pathology for Funeral Service. (4 cr. ; A-F only; Every Fall, Spring & Summer)
Basic principles of microbiology/pathology for funeral service, including bacteriology, rickettsiology, virology, protozoology, mycology, methods of transmission of infectious disease. Control procedures for protection of public health as related to funeral practice. Scientific focus on causes of disease, mechanisms of disease development, pathways by which morphologic changes occur.

MORT 3051. Restorative Art. (; 2 cr. ; A-F only; Every Fall & Spring)
In Restorative Art 3051, we will consider the importance of, and techniques for, creating an acceptable physical appearance upon deceased persons for the benefit of the survivors. Over the semester, we will study a variety of topics for the purpose of building skills in the area of restorative art, including anatomical terminology; skeletal structures of the face and cranium; musculature of the face and neck; photographic interpretations; classical proportions of the face and cranium; physiognomy of the face and cranium; essential components of the nose, mouth, eyes, and ears; various modeling techniques; proper placement guides for the restoration of damaged structures and/or missing features; treatments and techniques for both general and specific injuries; color theory, and cosmetology related to the funeral profession. Pre / Co-requisite: MORT 3061 Embalming Theory Prerequisites: MORT 2171 Introductory Human Anatomy; MORT 3171 Human Anatomy Laboratory

MORT 3061. Embalming Theory. (; 3 cr. ; A-F only; Every Fall & Spring)
This is an introductory course which covers the phenomenon of death of the human body, and the fundamental procedures associated with the practice of the art and science of embalming. Embalming is the process of chemically treating the dead human body in order to: (1) reduce the presence and growth of microorganisms; (2) retard organic decomposition; and (3) restore an acceptable physical appearance to the decedent.1 The semester begins with such topics as personal and public health considerations, and government regulations that are applicable to the embalming process and the fundamentals of embalming. Next are the topics of terminology and identification of embalming instruments, the importance of embalming analysis, and the completion of embalming reports. We advance to vessel location and selection, and procedures for preparing the body before the embalming process begins. We move on to the subject of embalming chemicals, with our lectures and discussions focusing on the reasons why we use various quantities and types of chemicals for each individual case. The course continues with presentations focusing on treatments for embalming difficult cases, including discussion of traumatic and pathological conditions, infections, communicable diseases, autopsied bodies, organ and tissue donors, and other various conditions. Prerequisites: MORT 2171 Introductory Human Anatomy; MORT 3171 Human Anatomy Laboratory

MORT 3065. Embalming Chemistry. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Fundamentals of inorganic/organic chemistry and biochemistry. Chemical changes in human body during life, after death, and during chemical preservation. Disinfection, toxicology, embalming fluids.

MORT 3090. Independent Study Project. (; 1-15 cr. [max 30 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study contracted between instructor, program director, and student. prereq: Mortuary science major

MORT 3091W. Independent Study in Funeral Service. (WI; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Students complete a project supervised by a faculty member. Credit(s) is negotiated with the faculty member based on the size and scope of the project. Students must demonstrate that the project has value within the major. prereq: Mortuary science major

MORT 3151. Restorative Art Laboratory. (; 1 cr. [max 2 cr.] ; A-F only; Every Fall & Spring)
Principles/techniques for restorative art. Modeling facial features with clay or wax. Use

of restorative techniques. Cosmetic application on human remains. Mortuary Science Major Pre / Co-requisites: MORT 3051 Restorative Art

MORT 3161. Embalming Laboratory. (; 1 cr. [max 2 cr.] ; A-F only; Every Fall & Spring)
Practices/procedures of chemically preserving/ restoring human remains. Mortuary Science Major Pre / Co-requisites: MORT 3061 Embalming Lecture

MORT 3171. Human Anatomy Laboratory. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Study of gross human anatomy using cadavers. Anatomical structures, post-mortem examination, embalming, pathology, restorative art, forensic science. Prerequisites: MORT 2171; PHAR 1002: Medical Terminology

MORT 3371. Death, Dying and Bereavement Across Cultures and Religions. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Death, Dying and Bereavement across Cultures and Religions will explore a variety of cultures and religions as their beliefs, practices, customs and traditions around the issue of death, grief and funeral/burial rituals.

MORT 3379. Clinical Funeral Service Rotation. (1-6 cr. [max 18 cr.] ; A-F only; Every Fall, Spring & Summer)
Practical experience working in clinical settings related to funeral service. What it means to be a funeral director in contemporary American society. Mortuary Science Major Pre / Co-requisite: 3021W Prerequisites: MORT 3051; 3061; 3151; 3161

Moving Image Studies (MIMS)

MIMS 5910. Topics in Moving Image Studies. (; 2-4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Special topics in moving image studies.

Multidisciplinary Studies (MDS)

MDS 3001W. Introduction to Multidisciplinary Studies. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
University study at a major research institution, its history/theory and expectations/outcomes. Students design their degree and select areas/ courses. Institutional/student perspectives. prereq: Admitted to multidisciplinary studies

MDS 3093. Directed Study. (1-15 cr. ; A-F only; Every Fall, Spring & Summer)
Independent, directed study. prereq: instr consent

MDS 3101. Project Development. (; 1 cr. [max 5 cr.] ; A-F only; Every Fall, Spring & Summer)
Development, completion, approval of MdS project proposal. Steps/skills of academic project design/development including academic research/writing. Library data base searching methods/citation styles. prereq: 3001W, MdS major, adviser referral, permission number, basic computer/internet skills

MDS 3201. Project Registration 1. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Complete project developed in MdS 3101 by conducting research, accomplishing project outcome(s), securing narrative evaluation from project adviser/evaluator. prereq: 3001W, MdS major, C- or above in 3101, approved project proposal, permission number, basic computer and internet skills

MDS 3202. Project Registration 2. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Complete project developed in MdS 3101 by conducting research, accomplishing project outcome(s), securing a narrative evaluation from project adviser/evaluator. prereq: 3001W, MdS major status, C- or above 3101, approved project proposal, permission number, basic computer/internet skills

MDS 3203. Project Registration 3. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Complete project developed in MdS 3101 by conducting research, accomplishing project outcome(s), securing narrative evaluation from project adviser/evaluator. prereq: 3001W, MdS major, C- or above 3101, approved project proposal, permission number, basic computer/ internet skills

Museum Studies (MST)

MST 5011. Museum History and Philosophy. (3 cr. ; A-F or Audit; Every Fall)
Historical and philosophical roots of museums and emerging philosophical issues faced by museums today - from art, history, science, and youth to living collections, living history sites, and historic houses. Field trips to area museums.

MST 5012. Museum Practices. (3 cr. ; A-F or Audit; Every Spring)
Practical aspects of museum work. Standards, practices, responsibilities, issues, all set in greater museum context. Curatorial/educational duties, collections management, security, funding, boards, public relations, installation, budgeting. prereq: Grad student or instr consent

MST 5020. Internship. (; 1-6 cr. [max 32 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Students arrange to perform a professional-level task in a museum of good standing under close supervision of a member of the museum's professional staff. Instructor must approve a work plan and report. prereq: 5011, 5012, dept consent

MST 5170. Topics in Museum Studies. (; 1-4 cr. ; A-F only; Periodic Fall & Spring)
In-depth investigation of specific topic, announced in advance. prereq: grad student

Music (MUS)

MUS 1013. Rock I: The Historical Origins and Development of Rock Music to 1970. (AH,DSJ; 3 cr. ; A-F or Audit; Every Fall & Summer)
Musical, cultural, historical, social, and political evolution of rock music, from its traceable antecedents in mid-19th century America through the early 1970s. Emphazes manner in which African, European, and other ethnic traditions combined in a uniquely American manner.

MUS 1014. Rock II: Rock Music from 1970 to the Present. (AH,DSJ; 3 cr. ; Student Option; Every Spring)
Musical, cultural, and historical evolution of rock music and related pop forms. Progressive rock, punk, disco, new wave, MTV, heavy metal, hip-hop, grunge, turntable-based styles, women in rock.

MUS 1015W. Music and Movies: The Use and Representation of Music and Musicians in Film in a Global Context. (WI; 4 cr. ; A-F or Audit; Periodic Spring & Summer)
Film from perspectives of its use/representation of music/musicians. How does music underscore nuances of action, characterization, and feeling in film? Roles of music in film musicals, rock, and other vernacular films. Films about musical life. Films whose structure is musically based.

MUS 1021. Introduction to Music. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Survey of European/American "art," "popular" music in context of those cultures. Aural analyses of musical styles/forms.

MUS 1051. Class Piano for Nonmusic Majors I. (; 2 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
For nonmusic majors with little or no keyboard background. Functional skills such as reading, harmonizing, playing by ear and improvising, along with basic technique and study of elementary solo and ensemble repertoire.

MUS 1052. Class Piano for Non Music Majors II. (; 2 cr. ; Student Option No Audit; Every Fall & Spring)
For nonmusic majors with little or no keyboard background. Functional skills such as reading, harmonizing, playing by ear and improvising, along with basic technique and study of elementary solo and ensemble repertoire.

MUS 1151. Piano: Class Lessons I. (; 2 cr. ; A-F or Audit; Every Fall)
A beginning course for music majors and music minors with a limited keyboard background. Emphasis is on developing functional skills such as reading, transposing, harmonizing, improvising, and playing by ear, along with keyboard theory, technique, repertoire, and practice strategies. prereq: undergraduate music major or music minor status.

MUS 1152. Piano: Class Lessons II. (; 2 cr. ; A-F or Audit; Every Spring)
A continuation of Mus 1151, a beginning course for freshman music majors and minors with limited keyboard background. Emphasis is on functional skills, such as reading, transposing, harmonizing, improvising, and playing by ear, along with keyboard theory, technique, repertoire, and practice strategies. prereq: MUS 1151 or instr consent

MUS 1155. Keyboard Skills I. (; 2 cr. ; A-F or Audit; Every Fall)
Reading, transposing, harmonizing, improvising, playing by ear. Keyboard theory, technique, music learning skills. prereq:

Keyboard major or music major with extensive keyboard background or instr consent

MUS 1260. Voice Class. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
The fundamentals of speech and singing including information about the vocal instrument, the vocal process, vocal technique, and how to learn and perform three simple songs. prereq: Basic musicianship for learning and performing simple songs. In this context, basic musicianship means: 1. Ability to match pitch 2. Ability to repeat and read simple a simple rhythm. 3. Ability to learn a song independently from sheet music.

MUS 1471. Guitar: Class Lessons I. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Fundamentals for the beginning guitarist; progressive development of skills. Basic strumming techniques, harmonizations in basic keys. Students must furnish acoustic guitar.

MUS 1472. Guitar: Class Lessons II. (; 2 cr. ; A-F or Audit; Every Spring)
Fundamentals for the beginning guitarist; progressive development of skills. Advanced strumming techniques, bass runs, finger-picking strums. Students must furnish acoustic guitar. prereq: 1471 or instr consent

MUS 1475. Beginning Ukulele. (2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
This course is intended as an introduction to beginning ukulele techniques employed in contemporary songs. This will involve learning basic open and bar chords, learning how to read music and play it on the instrument, as well as learning basic ukulele finger style technique. The course will also cover basic music theory necessary for a) playing songs and b) getting basic fret board knowledge.

MUS 1501. Theory and Analysis of Tonal Music I. (2 cr. ; A-F or Audit; Every Fall)
This course begins the core sequence of theory and musicianship courses required of the undergraduate music majors and music minors. In this course you will develop basic skills in music fundamentals and then apply these to species counterpoint, harmony and analysis exercises. These studies will then also be applied as concrete skills in your musicianship class (MUS 1511 Ear-Training/Sight-Singing I) through identification of musical materials, melodic, harmonic, and rhythmic dictation; sight-singing and clef reading. Listening exercises will train you not only in familiarity with the core repertoire of Western European concert music, but also in what to listen for and how. Co-Requisite: course must be taken concurrently w/ MUS 1511.

MUS 1502. Theory and Analysis of Tonal Music II. (2 cr. ; A-F or Audit; Every Spring)
These courses continue the core sequence of undergraduate theory and musicianship courses that are required for the undergraduate music majors and minors. Building upon the skills developed in the earlier courses [MUS 1501, 1511], we will now develop a more complete and sophisticated phrase model for harmony. These concepts will then also be applied as concrete skills in your musicianship classes (MUS 1512 Ear-Training and Sight Singing II) through melodic, harmonic, and rhythmic dictation; sight-singing and clef reading. Each component emphasizes diatonic harmony. Course intended to be taken concurrently w/MUS 1512. prereq: [1501, 1511 with grade of at least C-]

MUS 1511. Ear-Training and Sight-Singing I. (1 cr. ; A-F or Audit; Every Fall)
Introduction to foundations of musicianship. Co-Requisite: students must concurrently enroll in MUS 1501 Theory and Analysis of Tonal Music I.

MUS 1512. Ear-Training and Sight-Singing II. (1 cr. ; A-F or Audit; Every Spring)
Develop basic musicianship skills in sight-singing, ear-training and musical vocabulary. Chromatic harmonic, contrapuntal/voice leading principles in common-practice music (Corelli to Brahms). Analyze chromatic progressions, rhythms, melodies, contrapuntal functions. Proficiency in keyboard skills. Course intended for concurrent registration in MUS 1502 Tonal Theory II. prereq: [MUS 1501 and MUS 1511] with grades of at least C-.

MUS 1593. Making Music With Computers. (3 cr. ; A-F only; Every Fall & Spring)
This course will provide students with the understanding and skills to create music using computers.

MUS 1801W. Music, Society, and Cultures. (AH,WI,GP; 3 cr. ; A-F or Audit; Every Fall)
Drawing on examples from many different places and times, we will develop an analytic language to address the power of musical performance. We will study various methods of musical enculturation; the connections between politics and musical aesthetics; the ways in which music reinforces and challenges scaffoldings of race, nation, and ethnicity; and the power of music to form ethical subjects. Prereq: Registration for this course is open until the first day of class, at which point instructor consent will be required.

MUS 1804. World Music. (AH,GP; 3 cr. ; Student Option; Every Fall & Spring)
Musical practice/meaning around the world and in our backyard. World music styles/ perspectives in cultural context. Lectures, in-class music making, guest artists, videos, listening. prereq: Registration for this course is open until the first day of class, at which point instructor consent will be required.

MUS 1911. Violence Against Women In Opera. (; 3 cr. ; A-F only; Periodic Fall & Spring)
In this seminar we will combine lecture, discussion, listening, and viewing of opera productions which depict different aspects of "violence" against women. We will utilize seven well-known operas from a wide variety of periods and styles to illuminate how opera is uniquely suited to addressing this particular issue. The operas will include The Marriage of Figaro, La Traviata, Carmen, Madama Butterfly, Street Scene, The Rape of Lucretia, and Susannah.

MUS 1912. Guitar Heroes. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This seminar is going to explore music related to the most popular instrument in the world: guitar. Students will be introduced to the centuries-old world of the classical guitar, the flamenco guitar, the guitar in Latin America, African guitar styles, the birth of American guitar (blues, country, jazz, etc.) and rock/ electric guitar. We will explore the role of the guitar in popular music, jazz, world, and classical music.

MUS 1914W. Music in Nazi Germany. (CIV,WI; 3 cr. ; Student Option No Audit; Periodic Fall & Spring)
Apart from an explicit message in the lyrics, title, or dedication, can music itself be political? Often, the political message comes from the interpreter, not just the composer or performer. Are composers responsible for the effect of the music, regardless of their intentions? How have those in power sought to legitimize their rule through the arts? Can the arts maintain their independence? What is the responsibility of the listener in a highly political environment? This seminar will examine the role of art and art censorship by focusing on one of history's most brutal regimes, which was also among the greatest patrons of music. What compromises and benefits followed when a musician, conductor, or composer collaborated? Did exploiting music actually help the Nazis to build support? How should citizens of democratic societies commemorate and/or judge the choices that artists made in harsher times?

MUS 1915. The Color of Music. (; 3 cr. ; A-F only; Periodic Fall & Spring)
How are sounds depicted? How are colors sounded? How do the worlds of music and fine arts intersect and construct meaning that is both specific to each and shared by both? How does each help us experience the world around us in different yet complementary ways? In this seminar you are invited to join a semester-long journey which seeks some answers to these questions through immersion in the sounds, shapes, and colors of Western European art across many centuries. We will be looking at art and listening to music, while learning how to express what we perceive to be interesting, beautiful, and meaningful about their relationship and our reaction to them.

MUS 1916. All About Music: Its Meaning, Reality, Communication, and Embodiment. (TS; 3 cr. ; A-F only; Periodic Fall & Spring)
The great philosopher of life Friedrich Nietzsche rightly claims that "without music, life would be a mistake." This does not mean that life is automatically perfect with music. This seminar deals with exactly this problem: What is music doing to us? Why do we listen to it? And how that? What is its meaning in our lives, why does it matter, which realities does it touch, how can it be communicated? In what way is it distributed between intellect and emotions? And why do we go to concerts, since electronic media and the internet provide such an easy access? The answers will be approached via intensive listening to all kinds of music from different cultures and epochs as well as through critical, very open discussions with the students. The instructor being highly

sensitive to non-authoritarian music cultures, he may provide a thoroughly dynamic and flexible access to music.

MUS 3021. Introduction to Music. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Survey of European and American .art. and .popular. music in the context of those cultures; aural analyses of musical styles and forms.

MUS 3200. Campus Singers. (; 2 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Campus Singers is a non-auditioned ensemble and open to all members of the University community, including students, faculty, staff, and alumni. The Campus Singers sing diverse repertoire from various periods/cultures.

MUS 3230. Chorus. (; 1-2 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Includes the University Women's Chorus, Men's Chorus, Concert Choir, and Choral Union. Choirs participate in a variety of programs exploring both Western and non-Western repertoire from the Middle Ages through the 20th century. Concerts include touring, and collaborative campus and community performances. prereq: Choral and/or instrumental music background, audition, instr consent

MUS 3241. Vocal Literature (German Lieder) and Pedagogy. (1 cr. ; A-F or Audit; Periodic Fall)
This is an undergraduate survey course of the history of German Lieder with pedagogical considerations for performance practices of the major repertoire. We will explore the beginnings of the movement from the Enlightenment of the 1700?s with Mozart and Beethoven to the end of the movement culminating in the early 20th century with the Second Viennese School, as well as topics associated with voice in speech/singing and vocal anatomy/physiology, process/methods/techniques, care. The class will consist of lectures, listening lists, reading assignments, tests and performance presentations from the students. prereq: MUS 1502, MUS 1512, MUS 3602W and [Vocal performance or accompanying major]

MUS 3242. Vocal Literature (French Melodie) and Pedagogy. (; 1 cr. ; A-F or Audit; Periodic Spring)
French M?lodie: its origins, composers, and development. Musical/textual analysis of representative works. Poetry that serves as song text. French symbolist poets. Listening assignments. prereq: [Vocal music or accompanying major], 2 yrs of music theory/history

MUS 3261. Italian Diction for Singers. (; 1 cr. ; A-F or Audit; Every Fall)
The sounds and symbols of the International Phonetic Alphabet, rules for correct Italian lyric diction, rudimentary Italian grammar, the meanings of Italian musical expressive markings, and Italian words most commonly found in song texts. prereq: Voice or choral music major, concurrent registration is required (or allowed) in applied voice

MUS 3262. English Diction for Singers. (; 1 cr. ; A-F or Audit; Every Spring)
English lyric diction for performance of classical vocal music. Use International Phonetic Alphabet for standard transcriptions of song texts, compile a discography of British/American art songs, perform songs in class, and prepare poetry for oral presentation and improvisation. prereq: Voice or choral music major, concurrent registration is required (or allowed) in applied voice

MUS 3263. German Diction for Singers. (; 1 cr. ; A-F or Audit; Every Fall)
Principles and practice of German lyric diction for classical vocal music. Transcriptions of German Lieder into International Phonetic Alphabet, elementary German grammar and common song vocabulary, 4 to 5 German songs performed in class for critique, and rules for pronunciation. prereq: Voice or choral music major, concurrent registration is required (or allowed) in applied voice

MUS 3264. French Diction for Singers. (; 1 cr. ; A-F or Audit; Every Spring)
Principles and practice of French lyric diction for classical vocal music. Transcriptions of French milodie into International Phonetic Alphabet, elementary French grammar and common song vocabulary, 4 to 5 French songs performed in class for critique, and rules for pronunciation. prereq: Voice or choral music major, concurrent enroll in applied voice

MUS 3271. Benvenuto a Milano: The City of Music, Art and Fashion. (AH,GP; 3 cr. ; Student Option No Audit; Periodic Summer)
This global seminar will feature a three-week stay experiencing some of the world's greatest visual art, architecture, music and fashion in the magnificent cosmopolitan city of Milan, Italy. While in Milan, you will explore the origins of the Renaissance Movement through the Contemporary Period and trace the social and political events that influenced Italian artists and composers through these eras. Known as the "Risorgimento" (resurgence) movement, students will discover how 18th century opera, with an emphasis on Giuseppi Verdi, helped influence and unify the individual peninsula states into a grand Italian kingdom and help shape modern day Italy.

MUS 3331. Jazz Improvisation I. (; 2 cr. ; A-F or Audit; Periodic Fall)
Rudiments; analysis; improvisation on blues in three major keys and standard American popular jazz compositions from swing era to early bebop; applications of major and minor scales; ear training. prereq: Music major or instr consent

MUS 3340. Jazz Ensemble. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
A 20-member performing organization covering significant jazz compositions and arrangements written specifically for this medium. prereq: Audition, instr consent

MUS 3350. Jazz Combo. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
A performance laboratory class with emphasis on improvisation and learning the jazz vocabulary. A minimum of two public performances is required each semester. prereq: Audition, instr consent

MUS 3380. Gospel Choir. (2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Gospel Choir is a non-auditioned choral ensemble open to all members of the University community, including students, faculty, staff, and alumni. Throughout the semester, students will perform in choral department concerts, observe and critique musical performances, and demonstrate improved musicianship. The music performed will cover a wide range of musical styles and will help students develop improved vocal skills. Students explore history of gospel music through experiential/participatory songs, field songs, songs of struggle, Southern, traditional, and contemporary songs. Pre-req: Although no audition is required, all students will be heard privately by the instructor during the first week of class for voice placement in the choir. Additionally, a survey will be taken at the beginning of the semester to assess students' prior musical experiences.

MUS 3400. University and Campus Bands. (; 2 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
University Band- The University Band is comprised of woodwind, brass, and percussion musicians in disciplines across the university. This ensemble studies and prepares standard and contemporary wind band repertoire and performs four concerts each year. Please consult with the Ensemble Library in Ferguson Hall for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition. Gold Band- The Gold Campus Band is comprised of woodwind, brass, and percussion musicians from all disciplines across the university. Consisting primarily of non-music majors, this ensemble is intended as a way for students outside the School of Music to continue performing in college. Music majors are also encouraged to perform in this ensemble on a secondary instrument. This ensemble studies and prepares standard and contemporary wind band repertoire and performs two concerts per semester. No audition is required to join the Gold Campus Band, though basic proficiency on a traditional band instrument and fluency in reading notated music is a requirement. The Maroon Campus Band is comprised of woodwind, brass, and percussion musicians from all disciplines across the university. Consisting primarily of non-music majors, this ensemble is intended as a way for students outside the School of Music to continue performing in college. Music majors are also encouraged to perform in this ensemble on a secondary instrument. This ensemble studies and prepares standard and contemporary wind band repertoire and performs two concerts per semester. No audition is required to join the Maroon Campus Band, though basic proficiency on a traditional band instrument and fluency in reading notated music is a requirement. North Star Band- The North Star Campus Band is comprised of woodwind,

brass, and percussion musicians from all disciplines across the university. Consisting primarily of non-music majors, this ensemble is intended as a way for students outside the School of Music to continue performing in college. Music majors are also encouraged to perform in this ensemble on a secondary instrument. This ensemble studies and prepares standard and contemporary wind band repertoire and performs two concerts per semester. No audition is required to join the North Star Campus Band, though basic proficiency on a traditional band instrument and fluency in reading notated music is a requirement.

MUS 3401. Basic Conducting. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
The Basic Conducting course explores the many facets of the role of a conductor (within orchestral, wind band, choral areas), conducting philosophies, and conducting and rehearsal techniques for choral and instrumental ensembles. Students explore score study, analysis, gesture, body awareness, and expression. Basic Conducting is offered annually in the spring semester. Pre-req: MUS 1502 (Theory and Analysis of Tonal Music II), music major, music minor, or instructor approval

MUS 3410. University Wind Bands. (; 1 cr. [max 14 cr.] ; A-F or Audit; Every Fall & Spring)
The University Wind Ensemble is comprised of the university?s finest graduate and undergraduate woodwind, brass, and percussion musicians. This ensemble prepares a wide variety of repertoire composed from the early Renaissance through today and performs concerts on and off campus throughout the year. The ensemble participates in special activities, events, projects, and collaborations with featured guest artists. The University Wind Ensemble and University Symphony Orchestra share musicians and rehearse on alternating block schedules during the semester (a project-focused schedule). Please consult with the Ensemble Library in Ferguson Hall for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition. The Symphonic Band is comprised of woodwind, brass, and percussion musicians in music disciplines as well as other disciplines across the university. This ensemble studies and prepares standard and contemporary wind band repertoire and performs concerts on and off campus throughout the year. Many performances are shared with guest ensembles and/or featured guest artists. Please consult with the Ensemble Library in Ferguson Hall for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition. prereq: Audition, instr consent

MUS 3420. Orchestra. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Symphony orchestra performs standard repertory and major works with chorus; concerts and tour appearances. Players from all colleges may participate. prereq: Audition, instr consent

MUS 3430. Campus Orchestra. (; 2 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Three campus orchestras perform standard and contemporary orchestral literature. Non-Music-Major Wind, Brass, Percusssion, and String Players from all colleges may participate. prereq: Non-music major or unable to register for University Orchestra

MUS 3440. Chamber Ensemble. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Performance of chamber music; duos, trios, quartets, quintets, and other ensemble combinations for instruments and voices. prereq: instr consent

MUS 3480. Marching Band. (2 cr. [max 12 cr.] ; A-F or Audit; Every Fall)
One of the premiere marching bands in the country, the University of Minnesota Marching Band ?The Pride of Minnesota? is comprised of 320 students from colleges and departments across the university. The UMMB performs at all home Gopher Football games as well as at other events throughout the semester. Please consult the Band Department for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition. prereq: instr consent

MUS 3490. Athletics Bands. (; 1 cr. [max 16 cr.] ; A-F or Audit; Every Spring)
Each of the three pep bands perform at approximately 25 regular season events between late September and early March (roughly 12-13 each semester). In addition, bands perform at several post-season events as the teams progress through conference and NCAA tournaments. Attendance at all pep bands rehearsals is required. Please consult the Band Department for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition.

MUS 3501. Theory and Analysis of Tonal Music III. (; 2 cr. ; A-F or Audit; Every Fall)
Harmony and voice-leading. Diatonic and basic chromatic chords. Form. Analysis of music from 18th/19th centuries. Co-requisite: intended for concurrent registration with MUS 3511 Ear Training & Sight Singing III. prereq: [MUS 1511, MUS 1512] with grade of at least C- or higher.

MUS 3501H. Theory and Analysis of Tonal Music III - Honors. (; 2 cr. ; A-F only; Every Fall)
Harmony and voice-leading. Diatonic and basic chromatic chords. Form. Analysis of music from 18th/19th centuries. Co-requisite: intended for concurrent registration with MUS 3511 Ear Training & Sight Singing III. prereq: [MUS 1511, MUS 1512] with grade of at least C- or higher.

MUS 3506. Theory and Analysis of American Popular Music. (; 3 cr. ; A-F or Audit; Fall Odd Year)
This course provides a basic introduction to analyzing popular songs, primarily those within the Anglo-American tradition. Although the course focuses directly on the musical details, techniques, and forms pertaining to popular songs, larger questions of meaning and interpretation, production, sound and instrumentation, history of musical style and genre and historical periodization, important individual performers/songwriters and artistic formations, marketing and sociology, and globalization will not be ignored?but they will be most often pursued in the context of analyzing specific songs and recordings. Like any viable form of music, popular music is also a living practice, and hence our engagement with popular music will also require us to be in contact with practitioners of popular music here in the Twin Cities. Finally, the course will require students to engage with popular music in a number of ways?transcription, analysis, aural skills, ethnography (of a modest sort), composition, performance, and expository writing. The class begins with basic parameters as explored in rock music (which, for the purposes of this class, overlaps with classic R&B/soul), then moves backwards to various origination points for rock in American popular music, and then pursues various different topics for the remainder of the course. prereq: [MUS 3501, MUS 3511] with a grade of C- or better

MUS 3508. Review of Tonal Theory. (; 2 cr. ; Student Option; Every Fall)
Fast-paced review of 1501, 1502, and 3501. Focuses on diatonic and basic chromatic procedures, part-writing, and analysis. prereq: Theory placement exam

MUS 3509. Review of Tonal Theory IV. (; 2 cr. ; Student Option; Every Fall)
Remedial course. Harmony, voice-leading. Chromatic tonal practices. Form, including sonata, rondo, variations, and other standard categories of tonal composition. Analysis of music from 18th/19th centuries. prereq: Grad music student or instr consent

MUS 3511. Ear-Training and Sight-Singing III. (; 1 cr. ; A-F or Audit; Every Fall)
Melodic, harmonic, and rhythmic dictation. Sight-singing. Clef reading. Emphasizes chromatic harmony. Co-requisite: course intended for concurrent enrollment in MUS 3501 Tonal Theory III. prereq: [MUS 1502, MUS 1512] with grade of at least C- or higher, or diagnostic test administered by School of Music

MUS 3518. Review of Ear-Training and Sight-Singing. (; 1 cr. ; Student Option; Every Fall)
Fast-paced review of 1502 and 3501 focusing on diatonic and basic chromatic procedures. Emphasis on melodic and harmonic dictation. Individual sight-singing auditions. prereq: Theory Placement Exam

MUS 3519. Review of Ear-Training and Sight-Singing. (; 1 cr. ; Student Option; Every Fall & Spring)
Remedial course. Fast-paced review of 3502. Focuses on diatonic/basic chromatic procedures. Emphasizes melodic/harmonic dictation. Individual sight-singing auditions. prereq: Grad student in music or instr consent

MUS 3601W. History of Western Music I. (WI; 3 cr. ; A-F or Audit; Every Spring)
This is the first course in the undergraduate music history sequence. We will study music composed over a very broad time span, ca. 800 to 1700, looking at the works' musical structures within the larger contexts of musical style, social/political significance, and broad aesthetic and philosophical movements. In addition, as a writing intensive course, students will hone their writing skills, focusing in particular on listening to and analyzing early music. Pre-reqs: MUS 1501 and MUS 1511

MUS 3602W. History of Western Music II. (WI; 3 cr. ; A-F or Audit; Every Fall)
This is the second course in the undergraduate music history sequence. We will study music composed ca. 1700?1880, looking at the works? musical structures within the larger contexts of musical style, social/political significance, and broad aesthetic and philosophical movements. In addition, as a writing intensive course, students will hone their writing skills, focusing in particular on analyzing and writing about music. prereq: MUS 1502, MUS 1512, and MUS 3601 OR instr consent

MUS 3603W. History of Western Music III. (WI; 3 cr. ; A-F or Audit; Every Spring)
History of European/American art, popular music traditions, from 1850 to present. Composers, styles, structures, social institutions. prereqs: [MUS 3602W, MUS 3501, MUS 3511] with grades of at least C- or instr consent

MUS 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

MUS 3950. Topics in Music. (; 1-3 cr. [max 15 cr.] ; Student Option; Periodic Fall & Spring)
Each offering focuses on a single topic. Topics specified in Class Schedule.

MUS 3993. Directed Studies. (1-4 cr. [max 10 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

MUS 3995. Major Project. (; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Required of music majors in senior year of the B.A. program. Research paper on topic of student's choice in consultation with faculty mentor. Sign up in Undergraduate Studies office one term in advance. prereq: Undergrad music major in B.A. program, instr consent, dept consent

MUS 4502. 18th-Century Counterpoint. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
The content of this course is stylistic, focusing on the contrapuntal technique of the late Baroque period (approximately 1700?1750) with some allusions to immediately preceding and following styles. Emphasis will focus on writing skills with some analysis of complete (or substantial sections of) pieces. A working knowledge of tonal harmony and figured bass is prerequisite. Topics to be covered will include: melody, two- and three-part counterpoint; diminutions; cadences, motivic development, and form; techniques for cantus firmus, imitative, and free counterpoint; canon and fugue; and chromaticism. prereq: [3501, 3508] or pass basic skills exam

MUS 4504. Intensive Theory and Analysis of 20th-Century Music. (; 2 cr. ; A-F or Audit; Every Spring)
Theory and analysis of art music in various styles developed in 20th century. Co-requisite: course intended for concurrent registration in MUS 4514 Ear-Training and Sight-Singing for 20th-Century Music. prereq: [MUS 3501 and MUS 3511 with grades of at least "C -"] or instr consent

MUS 4505. Jazz Theory. (; 3 cr. ; A-F or Audit; Every Fall)
Beginning through advanced techniques for jazz chord construction including extended chords and advanced nomenclature in jazz idiom. prereq: [MUS 3501and MUS 3511] with grades of at least C- or instructor permission

MUS 4514. Ear-Training and Sight-Singing for 20th-Century Music. (; 1 cr. ; A-F or Audit; Every Spring)
Developing aural skills relevant to 20th-century Western art musics. Focuses on pitch relations, rhythmic techniques, form, and to a lesser degree, timbre and texture. Co-requisite: concurrent registration required with MUS 4504 Intensive Theory and Analysis of 20th-Century Music. prereq: [MUS 3501 and MUS 3511 with grade of at least C-] or instr consent

MUS 5101. Piano Pedagogy I. (; 2 cr. ; Student Option; Periodic Fall)
Demonstration and discussion of teaching techniques, methods, and materials for group and individual instruction at the elementary, early intermediate, and late intermediate levels. prereq: 8 cr in MusA 1301 or MusA 1401 or instr consent

MUS 5150. Body Awareness in Activity: The Alexander Technique for Musicians. (2 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
The Alexander Technique is a century-old technique used by musicians and others as a means of solving performance problems. Its principles address how the daily habits in the use of the self (such as sitting, standing, folding/bending, and walking) affect seemingly disparate problems such as stage fright, musculoskeletal pain, playing induced injuries, and computer use injuries. For musicians, the interplay of unconscious habits and the body mechanics of daily use of the self strongly affect tone production and technique. The Alexander Technique provides tools to enhance fundamental coordination leading to greater performance ease and a reduction of chronic aches and pains. More information can be found at: https://www.amsatonline.org

MUS 5151. Organ Literature I. (; 3 cr. ; A-F or Audit; Periodic Fall)
Organ literature from the 14th century to the mid-18th century. Influence of organ design of various periods and national schools on the literature and its performance. prereq: 3502, 3603, sr or grad or instr consent

MUS 5152. Organ Literature II. (; 3 cr. ; A-F or Audit; Periodic Fall)
Organ literature of J. S. Bach and of other 19th- and 20th-century composers. Influence of organ design of various periods and national schools on the literature and its performance. prereq: 3502, 3603, sr or grad or instr consent

MUS 5153. Organ Pedagogy. (2 cr. ; A-F or Audit; Spring Odd Year)
Familiarization with materials and techniques for teaching playing the pipe organ. Through their study, students are to gain knowledge of organ methods and various aspects of teaching and learning to play the King of Instruments.

MUS 5181. Advanced Piano Literature I. (; 2 cr. ; A-F or Audit; Fall Even, Spring Odd Year)
Literature for piano from late Baroque period to mid-20th century. prereq: grad piano major or instr consent

MUS 5182. Advanced Piano Literature II. (; 2 cr. ; A-F or Audit; Periodic Spring)
Literature for piano from late Baroque period to mid-20th century. prereq: grad piano major or instr consent

MUS 5230. Chorus. (; 1-2 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
University Women's Chorus, Men's Chorus, Concert Choir and Choral Union. Choirs participate in a variety of programs exploring both Western and non-Western repertoire from the Middle Ages through the 20th century. Concerts include touring, and collaborative campus and community performances. prereq: Choral and/or instrumental music background; audition, instr consent

MUS 5240. University Singers. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Mixed chorus with members of former chamber singers and concert choir. Programs exploring Western/non-Western repertoire from Middle Ages through 20th century. Concerts include touring and collaborative campus/community performances. prereq: Audition, instr consent

MUS 5241. Vocal Literature I. (; 3 cr. ; A-F or Audit; Periodic Fall)
Vocal literature of major/minor composers from 17th century to present. Structure, style, performance practice. prereq: [12 cr in MusA 1304, grad music student] or instr consent

MUS 5250. Opera Workshop and Ensemble. (; 2 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Preparation and performance of operatic arias, choruses, and scenes. Participation

in fully staged or workshop productions of music theatre repertoire. prereq: audition, instr consent

MUS 5271. Diction for Singers I. (; 2 cr. ; A-F or Audit; Every Fall)
Principles and techniques of singing in English, Italian, Spanish, German, and French. International Phonetic Association alphabet used. prereq: 12 cr MusA 1304 or grad music major or instr consent

MUS 5272. Diction for Singers II. (; 2 cr. ; A-F or Audit; Periodic Spring)
Principles and techniques of singing in English, Italian, Spanish, German, and French. International Phonetic Association alphabet used. prereq: 12 cr MusA 1304 or grad music major or instr consent

MUS 5275. Vocal Pedagogy I. (; 3 cr. ; Student Option; Every Spring)
Advanced study of mind/body preparations for singing, anatomy, and physiology of the vocal mechanism. Voice use and care, historical and comparative pedagogy, learning theories, models and guidelines for teaching, instructional techniques, and diagnosing and solving vocal problems. prereq: Sr vocal major or instr consent

MUS 5276. Vocal Pedagogy II. (; 3 cr. ; A-F or Audit; Periodic Spring)
History of solo vocal performance; selection and preparation of beginning level solo vocal repertoire; development of vocal performance skills (interpretation, expression, artistry), recital programming, and vocal career counseling. prereq: Sr vocal major or instr consent

MUS 5280. Opera Theatre. (; 2 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Preparation and performance of fully-staged operatic production. Major involvement in singing, acting, and technical aspects of opera. prereq: audition, instr consent

MUS 5331. Jazz Improvisation I. (; 2 cr. ; A-F or Audit; Periodic Summer)
Rudiments, analysis. Improvisation on blues in three major keys and on standard American popular jazz compositions from swing era to early bebop. Applications of major/minor scales. Ear training. prereq: Music major or instr consent

MUS 5333. Music After 1945. (3 cr. ; A-F only; Fall Even Year)
This course will explore theoretical and analytical techniques in mid-twentieth and twenty-first-century music. After an initial unit of review of early twentieth-century techniques, the semester will be divided into units that encapsulate a musical domain (e.g. "rhythm"), rather than exploring chronologically. Students will be responsible for completing readings as well as analytical assignments for each class, as outlined on the course schedule. prereq: MUS 4504 or Graduate music major

MUS 5336. Jazz Arranging. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Beginning techniques of arranging for jazz combo and jazz ensemble; vocal and instrumental. prereq: 3502 or instr consent

MUS 5340. Jazz Ensemble. (; 1 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
A 20-member performing organization covering significant jazz compositions and arrangements written specifically for this medium. prereq: audition, instr consent

MUS 5400. University and Campus Bands. (; 1 cr. [max 10 cr.] ; Student Option; Every Fall & Spring)
Lab course.

MUS 5410. University Wind Bands. (; 1 cr. [max 14 cr.] ; A-F or Audit; Every Fall & Spring)
The University Wind Ensemble is comprised of the university?s finest graduate and undergraduate woodwind, brass, and percussion musicians. This ensemble prepares a wide variety of repertoire composed from the early Renaissance through today and performs concerts on and off campus throughout the year. The ensemble participates in special activities, events, projects, and collaborations with featured guest artists. The University Wind Ensemble and University Symphony Orchestra share musicians and rehearse on alternating block schedules during the semester (a project-focused schedule). Please consult with the Ensemble Library in Ferguson Hall for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition. The University Symphonic Band is comprised of woodwind, brass, and percussion musicians in music disciplines as well as other disciplines across the university. This ensemble studies and prepares standard and contemporary wind band repertoire and performs concerts on and off campus throughout the year. Many performances are shared with guest ensembles and/or featured guest artists. Please consult with the Ensemble Library in Ferguson Hall for more details on the rehearsal and performance schedule. Placement in the ensemble is determined through an audition; all university students are eligible to audition. prereq: audition, instr consent

MUS 5420. Orchestra. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Symphony orchestra performs standard repertory and major works with chorus; concerts and tour appearances. Players from all colleges may participate. prereq: audition, instr consent

MUS 5427. Violin Pedagogy I. (; 2 cr. ; A-F or Audit; Periodic Fall)
Private teaching of violin students at beginning, intermediate, and advanced levels. Discussion and demonstrations of pedagogical techniques. prereq: Violin or viola major or instr consent

MUS 5440. Chamber Ensemble. (; 1 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Performance of chamber music; duos, trios, quartets, quintets, and other ensemble combinations for instruments and/or voices. prereq: audition, instr consent

MUS 5450. Orchestral Repertoire. (; 1-3 cr. [max 9 cr.] ; A-F or Audit; Every Fall & Spring)
Investigation of practical and performance problems in standard orchestral repertoire with regard to style and interpretation. prereq: instr consent

MUS 5460. World Music Ensemble. (1-2 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Afro-Brazilian/Afro-Caribbean popular repertories. Samba, bossa nova, salsa, merengue, mambo. Planned master classes/ clinics with local artists to complement regularly scheduled rehearsals/performances. No audition required.

MUS 5461. Guitar Literature. (2 cr. ; Student Option; Fall Odd Year)
This course is principally intended for guitar majors (graduate and undergraduate students). The main focus of this course is to introduce students to guitar literature, through the historical overview of the repertoire, classical guitar composers, and performers. It will also introduce students to method books, in chronological order (through an examination of specific styles and "performance practices") and teaching methods through the history of guitar and guitar literature intended for technique development (studies, exercises, etc.).

MUS 5464. Cello Pedagogy. (; 2 cr. ; A-F or Audit;)
Concentrated study of cello teaching methods. Provides students with the strategies for teaching cello privately, develops analytical skills, and increases knowledge of cello repertoire. Designed for practical application in conjunction with the string technique class.

MUS 5466. Guitar Pedagogy. (; 2 cr. ; A-F or Audit; Fall Even Year)
Intended for guitar performance majors. This course will introduce basic teaching concepts/ methods/philosophies and examine method books, studies, and methodology through the history of classical guitar. Other topics (e.g., starting a studio, developing promotional material/website, contemporary teaching methods) will be addressed. prereq: Guitar performance major or instr consent

MUS 5481. Trumpet Pedagogy. (; 2 cr. ; Student Option; Fall Odd, Spring Even Year)
Principles of trumpet pedagogy. Discussion of literature, history, and current teaching aids. prereq: Sr or grad in music or instr consent

MUS 5485. Transcription for Winds. (; 2 cr. ; Student Option; Periodic Fall)
Principles of music manuscript and examination of transcription examples. Transcription projects with score and parts. Smaller projects that involve arrangements and original compositions. prereq: 3502 or instr consent

MUS 5490. Percussion Ensemble. (; 1 cr. [max 10 cr.] ; A-F or Audit; Every Fall & Spring)
Practice and performance of standard and contemporary compositions for percussion instruments in various combinations. prereq: instr consent

MUS 5491. Percussion Literature I. (; 2 cr. ; A-F or Audit; Periodic Fall)
Repertoire derived from orchestral and band literature for snare drum, timpani,

mallet instruments, and various percussion accessories. Major works of the 20th century written for solo percussion, percussion ensemble, and chamber groups of percussion and non-percussion instruments. prereq: Jr or sr or grad or instr consent

MUS 5492. Percussion Literature II. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Repertoire derived from orchestral and band literature for snare drum, timpani, mallet instruments, and various percussion accessories. Major works of the 20th century written for solo percussion, percussion ensemble, and chamber groups of percussion and non-percussion instruments. prereq: Jr or sr or grad or instr consent

MUS 5493. Javanese Gamelan Music Ensemble. (1 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
Hands-on experience in learning to play Javanese gamelan music, one of the great non-western musical traditions that is readily accessible to beginners. Related insights into the role of this tradition in Javanese culture. Open to all students - no musical background needed!

MUS 5494. West African Music Ensemble. (1 cr. [max 8 cr.] ; Student Option; Periodic Fall & Spring)
Hands-on experience in learning to play West African music, one of the great non-western musical traditions that is readily accessible to beginners. Also, insights into function, context, structure, gender roles, politics, instruments, life-cycle rites, genres, musical organizations, traditional musicians, and contemporary popular music. Open to all students - no musical background needed!

MUS 5534. Musical Minimalisms. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course provides an introduction to the various musics associated with the label "minimalism," including musical trajectories emerging from them. Numerous artists and compositions will be covered, spanning from 1958 to the present, though the focus is on music composed during the 1960s and 1970s, including that by Young, Riley, Reich, Glass, Monk, the Velvet Underground, Andriessen, P?rt, Eno, Feldman, and others. The class blends analysis, historical and analytical secondary readings, and in-class performance. Students must contribute informed comments to discussion, which in turn requires the completion of reading and listening assignments. prereq: Undergraduates-Mus 4504/4514 or equivalent; Graduates-Music 3508/3518 or passing of the Theory Entrance Exam

MUS 5541. 16th-Century Counterpoint. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Polyphonic counterpoint in modal style of Renaissance. Writing exercises in species counterpoint and in two, three, and four parts. Cantus firmus techniques, mixed values, invertible counterpoint, canon. Representative works by Josquin, Lassus, Palestrina, Victoria, and others. Renaissance treatises by Artusi, Banchieri, Diruta, Morley, Zarlino, and others. prereq: [3501, 3508] or pass basic skills exam

MUS 5550. Class Composition for Performers. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Fall & Spring)
Original works in various forms. Development of individual compositional style in a post-tonal idiom. Various forms, performing forces, techniques. prereq: [4504, 4514 [with C- or better]] or instr consent

MUS 5561. Orchestration I. (; 3 cr. ; A-F or Audit; Every Fall)
Scoring techniques for ensembles in combination and full orchestra; year-long sequence. Score study of representative works from 18th through 20th centuries. prereq: 3502

MUS 5571. Schenkerian Analysis for Performers. (; 3 cr. ; A-F or Audit; Periodic Fall & Summer)
Theory/analysis of tonal music using principles developed by Henrich Schenker. Basic concepts/notation, their application to excerpts/short pieces from 18th/19th centuries. prereq: 3502

MUS 5572. Chromatic Harmony. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Exploration of chromatic tonal practices through analysis of selected repertoire, completion of written exercises (figured bass, harmonization of melodies, model composition), ear-training, and keyboard exercises.

MUS 5573. Analysis of Late-Romantic Orchestral Literature. (; 3 cr. ; A-F or Audit; Periodic Spring)
Advanced tonal analysis. Dramatic orchestral music by Wagner, Strauss, Tchaikovsky, Rimsky-Korsakov, Moussorgsky, and Rachmaninoff as focus for projects/discussions related to chromatic harmony, form, and orchestration. prereq: 3502 or Theory IV Exam or instr consent; [4504 or equiv] recommended

MUS 5591. Introduction to Music Information Technology. (3 cr. ; A-F or Audit; Every Fall)
Principles of acoustics, electronic sound generation/manipulation, digital signal processing techniques. Programming languages for digital sound synthesis. Editing software, MIDI applications. prereq: Music grad student or instr consent

MUS 5592. Music Informatics Seminar. (3 cr. ; A-F or Audit; Every Spring)
Filtering, formant synthesis, reverberation techniques, additive synthesis. Interactive MIDI applications. prereq: 5591 or instr consent

MUS 5597. Music and Text. (3 cr. ; A-F or Audit; Every Fall)
Designed for music majors only. Introduction to analysis of music with texts. Song/opera.

MUS 5611. Resources for Music Research. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Development of skills in identifying, locating, and evaluating resources for research in music. Computer-searching techniques, acquaintance with basic reference sources in the field, preparation of the music research paper. prereq: 3603

MUS 5620. Topics in Opera History. (; 3 cr. [max 6 cr.] ; A-F or Audit; Periodic Fall & Spring)
Study of specific operas. Development of opera in context of other artistic, social, cultural, political events, movements, changes. Periods/countries vary each semester.

MUS 5624. Music of J. S. Bach. (; 3 cr. ; A-F or Audit; Spring Even Year)
Issues of musical style, historical context. Moves chronologically through Bach?s career. Relationships between his duties and works he composed. Genesis, function, relationship of a work to genre and performing forces. Lectures, presentations, research/analysis assignments. prereq: Grad student in music or instr consent

MUS 5630. Performance Practice: 1700 to the Present. (3 cr. ; A-F only; Fall Even Year)
This course will explore issues relevant to the historically informed performance of music written between 1700 and the present, including primary sources, original instruments and iconography, editions, treatises, phrasing and articulation, tempo and rubato, rhythmic alteration, ornamentation and cadenzas, and basso continuo. Class activities and assignments will include readings, discussion, and practicum. Pre-requisite: Graduate student in Music or instructor consent

MUS 5631. Beethoven Sonatas for Solo Piano, Violin, & Cello. (3 cr. ; A-F only; Fall Odd Year)
Beethoven's sonatas are central to the violin, cello, and piano repertoires, and they will be examined in relation to the composer's life, times, and developing style. Scholarly books and articles, mostly musicological but also analytical, will provide the stimulus for understanding these works. The implications of such scholarly investigations for performance will also be a running theme of the course. Attention will therefore be given to performance practice issues as well as some difficult editorial and notational problems associated with the scores. Pre-requisite: Graduate student in Music or instructor consent

MUS 5647. 20th-Century European/American Music. (; 3 cr. ; Student Option; Every Spring)
Concert music and opera in European and American culture 1890s to present, political and social roles of music. prereq: MUS 1501 or equiv

MUS 5701. Music, Disability, and Society. (3 cr. ; A-F only; Spring Even Year)
Study of intersection of music/disability in culture from perspective of interdisciplinary disability studies. Musician's injuries, "adaptive music" accommodations, participation in music/music education as human/civil right. Universal Instructional Design pedagogy. prereq: Grad student in music or instr consent

MUS 5731. Jazz and Modernism. (3 cr. ; A-F or Audit; Spring Even Year)
Critical consideration of the mutual impact and cross-influences of jazz practices and modernist aesthetics. Contextualizes the emergence of styles including ragtime, swing, bebop, cool, third-stream, modal, and avant-

garde jazz within the broader aesthetic currents of 20th-century art and popular music cultures. prereq: Graduate student in music or instr consent

MUS 5732. Free Jazz: From Structure to Gesture. (3 cr. ; A-F only; Spring Odd Year)
Discuss musical form of free jazz comprising flow expressivity, collaborative interaction, gestural communication from theoretical/ practical point of view. Major representatives such as Ornette Coleman, Cecil Taylor, Archie Shepp, The Art Ensemble of Chicago, John Coltrane. Sound material include classical recordings but also recent free jazz CDs/DVDs. prereq: Grad student in music or instr consent

MUS 5805. Worlds of Improvisation. (3 cr. ; A-F or Audit; Spring Odd Year)
This course will explore traditions of improvisation from a variety of world cultures -- such as African, African-American, European, Middle Eastern, South Asian -- to gain insight into processes of composition in performance, from ethnomusicological, music-theoretical, and applied vocal/instrumental perspectives.

MUS 5950. Topics in Music. (; 1-4 cr. [max 60 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Each offering focuses on a single topic. Topics specified in Class Schedule.

MUS 5993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

Music Applied (MUSA)

MUSA 1101. Piano: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1103. Organ: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1104. Voice: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1105. Violin: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1106. Viola: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1107. Cello: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1108. Double Bass: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1109. Flute: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1111. Oboe: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1112. Clarinet: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1113. Saxophone: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1115. French Horn: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1116. Trumpet: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1117. Trombone: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1118. Euphonium: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Periodic Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1119. Tuba: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1121. Percussion: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1123. Guitar: Elective (non-major in music). (; 2-4 cr. [max 32 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 1201. Piano: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1203. Organ: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent This course is offered for 2 credits and meets for two hours a week; one hour being a one-on-one lesson between the instructor and student, and another hour in the instructor-led studio class.

MUSA 1204. Voice: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1205. Violin: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1206. Viola: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1207. Cello: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1208. Double Bass: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Periodic Fall & Spring)
Private instruction.

MUSA 1209. Flute: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1211. Oboe: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1212. Clarinet: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1213. Saxophone: Music Ed and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1214. Bassoon: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1215. French Horn: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1216. Trumpet: Music Education and BA. (2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1217. Trombone: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1218. Euphonium: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1219. Tuba: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1221. Percussion: Music Ed and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)

Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1222. Harp: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1223. Guitar: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 1301. Piano: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1302. Harpsichord: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1303. Organ: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1304. Voice: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1305. Violin: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1306. Viola: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1307. Cello: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1308. Double Bass: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1309. Flute: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1311. Oboe: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1312. Clarinet: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1313. Saxophone: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1314. Bassoon: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1315. French Horn: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1316. Trumpet: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1317. Trombone: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1318. Euphonium: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1319. Tuba: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1321. Percussion: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1322. Harp: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1323. Guitar: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1401. Piano: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Music major, dept consent

MUSA 1402. Harpsichord: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1403. Organ: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1404. Voice: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 1405. Violin: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 1406. Viola: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1408. Double Bass: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
Individual instruction on the double bass as a secondary instrument. prereq: Audition, dept consent

MUSA 1409. Flute: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1414. Bassoon: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1418. Euphonium: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1421. Percussion: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1423. Guitar: Music Major Secondary (undergraduate). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 1901. Piano: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1903. Organ: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1904. Voice: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1905. Violin: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1906. Viola: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1907. Cello: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1908. Double Bass: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1909. Flute: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1911. Oboe: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1912. Clarinet: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1913. Saxophone: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1915. French Horn: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1916. Trumpet: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1917. Trombone: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1918. Euphonium: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1921. Percussion: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1922. Harp: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 1923. Guitar: Music Major Transfer. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction for transfer students. One semester only. prereq: Audition, dept consent

MUSA 2201. Piano: Music Ed and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: [Music education or BA applied] major, dept consent

MUSA 2203. Organ: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2204. Voice: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2205. Violin: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2206. Viola: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2207. Cello: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2208. Bass: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2209. Flute: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2211. Oboe: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2212. Clarinet: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2213. Saxophone: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2214. Bassoon: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2215. French Horn: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2216. Trumpet: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2217. Trombone: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2219. Tuba: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2221. Percussion: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2222. Harp: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2223. Guitar: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 2301. Piano: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2302. Harpsichord: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, instr consent

MUSA 2303. Organ: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2304. Voice: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2305. Violin: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2306. Viola: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2307. Cello: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2308. Double Bass: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2309. Flute: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2311. Oboe: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2312. Clarinet: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2313. Saxophone: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2314. Bassoon: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2315. French Horn: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2316. Trumpet: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2317. Trombone: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2318. Euphonium: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2319. Tuba: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2321. Percussion: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2322. Harp: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 2323. Guitar: Music Major. (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3101. Piano: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3103. Organ: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3104. Voice: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3105. Violin: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3117. Trombone: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3121. Percussion: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3123. Guitar: Elective (non-major in music). (; 2-4 cr. [max 16 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 3201. Piano: Music Ed and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3204. Voice: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3205. Violin: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3206. Viola: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3207. Cello: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3209. Flute: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3211. Oboe: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3212. Clarinet: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3213. Saxophone: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3214. Bassoon: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3215. French Horn: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3216. Trumpet: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3217. Trombone: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3219. Tuba: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3221. Percussion: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3222. Harp: Music Education and BA. (; 2 cr. [max 16 cr.] ; A-F only; Every Fall & Spring)
Private instruction.

MUSA 3223. Guitar: Music Education and BA. (2 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Private instruction prereq: Audition, dept consent

MUSA 3301. Piano: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3302. Harpsichord: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3303. Organ: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3304. Voice: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3305. Violin: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3306. Viola: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3307. Cello: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3308. Double Bass: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3309. Flute: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3311. Oboe: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3312. Clarinet: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3313. Saxophone: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3314. Bassoon: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3315. French Horn: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3316. Trumpet: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3317. Trombone: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3318. Euphonium: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3319. Tuba: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3321. Percussion: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3322. Harp: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 3323. Guitar: Music Major. (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 5101. Piano: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5103. Organ: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: dept consent

MUSA 5104. Voice: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5105. Violin: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5106. Viola: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Periodic Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5112. Clarinet: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Periodic Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5113. Saxophone: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Periodic Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5116. Trumpet: Elective Individual Lessons (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
Individualized trumpet instruction. prereq: dept consent

MUSA 5121. Percussion: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5123. Guitar: Elective (graduate non-major in music). (; 2 cr. [max 8 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: dept consent

MUSA 5401. Piano: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5402. Harpsichord: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 5403. Organ: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 5404. Voice: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5405. Violin: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5408. Double Bass: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5409. Flute: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5414. Bassoon: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5415. French Horn: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5416. Trumpet: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5417. Trombone: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 5418. Baritone: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Private instruction. prereq: Audition, dept consent

MUSA 5421. Percussion: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

MUSA 5423. Guitar: Music Major Secondary (graduate). (; 2-4 cr. [max 24 cr.] ; A-F or Audit; Every Fall & Spring)
Private instruction. prereq: Audition, dept consent

Music Education (MUED)

MUED 1201. Introduction to Music Education. (; 2 cr. ; A-F only; Every Spring)
This course is designed as an introduction to the field of music education. It will provide students with an overview of the multifaceted nature of music teaching and learning, and serve as a foundation for the construction of your own beliefs and practices as a teacher and give you a framework to work effectively in diverse settings. This course will include: field experiences, readings, presentations, instructional technologies as well as historical, psychological, and philosophical foundations. Though this class is the first required MUED course of the music education major, major-level status in the School of Music is not required to enroll.

MUED 1801. Introduction to Music Therapy. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Methods, materials, and applications of music therapy in various clinical settings with emphasis on field observation.

MUED 3011. Music in Childhood. (; 3 cr. ; Student Option; Every Fall & Spring)
Learning each child's interests, needs, and abilities. Integrate music with other classroom subjects. Written/oral discussions, music making, micro-teaching, lesson presentations. Taught from arts perspective.

MUED 3802. Guitar I for Music Education and Music Therapy Majors: Developing Group Songleading Skills. (; 2 cr. ; A-F only; Every Fall)
How to play standing up, accompany oneself, cue/prompt, move around room while playing, sight-read chords, read tablature. Open chords, tuning, keys that facilitate group singing. Eye contact. Simple 2-5 chords songs. Teaching guitar to novice players. prereq: [Music therapy or music education major], dept consent

MUED 3803. Guitar II for Music Education and Music Therapy Majors: Developing Group Songleading Skills. (; 2 cr. ; A-F only; Every Spring)
Students play guitar, accompany themselves as they sing songs, and role play live music therapy and music education settings. How to play in various styles using open chords and different rhythmic accompaniment. prereq: 3802 with grade of at least C-, [music therapy or music education major], dept consent

MUED 3807. Percussion Techniques for Music Therapists. (; 2 cr. ; A-F or Audit; Every Spring)
Design, implement, and facilitate percussion into music therapy session. Variety of music therapy percussion instruments/how to successfully implement them into clinical practice with children, adolescents, and adults who are differently-abled.

MUED 4417. Style, Pedagogy, and Diction in the Choral Music Classroom I. (; 2 cr. ; A-F only; Every Fall)
Vocal styles. Lyric diction, vocal pedagogy. Performance in vocal jazz, musical theater, and classical styles. How to apply style concepts in school setting. SMARTMUSIC software. prereq: two semesters of applied voice at college level

MUED 4418. Style, Pedagogy, and Diction in the Choral Music Classroom II. (; 2 cr. ; A-F only; Spring Even Year)
Vocal styles. Lyric diction, vocal pedagogy. Performance in vocal jazz, musical theater, and classical styles. How to apply style concepts in school setting. SMARTMUSIC software. prereq: two semesters of applied lessons at college level

MUED 4502. String Techniques and Teaching. (; 2 cr. ; A-F or Audit; Every Spring)
Playing experience on orchestral string instruments. Historical/acoustical background. Scoring for strings. Principles of improvisation. Basic concepts of teaching. Methods/materials. Techniques of individual/class instruction.

MUED 4503. Woodwind Techniques and Teaching. (; 2 cr. ; A-F or Audit; Every Spring)
Playing experience on instruments of the woodwind family. Historical/acoustical background. Scoring for brasses. Principles of improvisation. Basic concepts of teaching. Methods/materials. Techniques of individual/class instruction.

MUED 4504. Brass Techniques and Teaching. (; 2 cr. ; A-F or Audit; Every Fall)
Playing experience on instruments of the brass family. Historical/acoustical background. Scoring for brasses. Principles of improvisation. Basic concepts of teaching. Methods/materials. Techniques of individual/class instruction.

MUED 4505. Percussion Techniques and Teaching. (; 2 cr. ; A-F or Audit; Every Fall)
Playing experience on percussion instruments. Historical/acoustical background. Scoring for percussion. Principles of improvisation. Basic concepts of teaching. Methods/materials. Techniques of individual/class instruction.

MUED 5101. Improvisation and Creativity in the Music Classroom. (; 2 cr. ; A-F only; Every Fall)
This course will address issues of improvisation, composition, and creativity of critical importance to musicians and music educators, with a strong emphasis on music-theoretical and socio-cultural modes of understanding the meanings and functions of music. Students will gain experience with the creative practices characteristic of a variety of Western and non-Western forms, including those of jazz and Minnesota American Indian music. The workshop format of the class will challenge students to improvise and compose works, present and perform them to their peers, provide and receive constructive feedback, engage and respond to this feedback with reference to clearly articulated statements of artistic intent, and revise the works accordingly. Students will apply insights derived in this manner in final research projects focused on the development of lesson and unit plans. prereq: At least C- in MUS 4504 or instructor permission

MUED 5301. General Music I. (; 3 cr. ; A-F or Audit; Every Spring)
Materials, strategies and the field experience for planning and implement instruction for global arts understanding among early childhood and lower elementary school children. Experiential learning, for integrating international music and culture perspectives while planning and implementing sequential elementary music instruction. prereq: MUED 1201, MUS 4504, MUS 4514, [music education major or instr consent], successful completion of soph proficiency exam

MUED 5302. General Music II. (; 3 cr. ; A-F only; Every Fall)
Materials, strategies and an extensive field experience with expert general music teachers for planning and implementing sequential upper elementary, middle and high school music instruction for global arts understanding. Includes interdisciplinary connections, performance, and applications of academic technologies. prereq: MUED 5301, MUED 1201, MUS 4504, and MUS 4514 with a grade of at least C-

MUED 5350. Student Teaching in Classroom Music. (; 4-8 cr. ; A-F or Audit; Every Fall & Spring)
Supervised teaching and observing of classroom and general music in elementary, junior high, and senior high schools. Weekly seminar emphasizing classroom management, curriculum development, and administration of music programs.

MUED 5415. Choral/Vocal Methods and Materials I. (; 3 cr. ; A-F only; Every Spring)
Choral/vocal methods and materials as part of licensure to work in K-12 settings per legislated standards. Sight-singing, classroom management, warm-ups, adolescent voice, choral conducting skills, repertoire, and rehearsal techniques. 25 hours of practicum at the middle school level. Applications of technology. First of two required semesters. prereq: MUED 1201, MUS 4504, MUS 4514, [music education major or instr consent], successful completion of soph proficiency exam

MUED 5416. Choral/Vocal Methods and Materials II. (; 3 cr. ; A-F only; Every Fall)
Choral/vocal methods and materials as part of licensure to work in K-12 settings per legislated standards. Choral conducting skills, rehearsal techniques, and interpretation of choral compositions. Methods, materials, and curriculum for high school choral ensembles. 20 hours of practicum at the high school level. Second of two required semesters. prereq: MUED 5415, MUED 1201, MUS 4504, and MUS 4514 with grade of at least C-, [music education major or instr consent], completion of the Music Education sophomore proficiency exam

MUED 5419. Advanced Conducting and Repertoire (Choral). (; 2 cr. ; A-F only; Every Fall)
Conducting/baton technique, nonverbal communication skills, rehearsal techniques, score study habits. Aural/diagnostic skills to rehearse a choral ensemble. Selection of age-appropriate repertoire. prereq: 3416, MUS 3401, MUS 3502, MUS 3512, music education major [choral]

MUED 5450. Student Teaching in Vocal Music. (; 4-8 cr. ; A-F or Audit; Every Fall & Spring)
Supervised teaching and observing of vocal music in elementary, junior high, and senior high schools. Weekly seminar emphasizing classroom management, curriculum development, and administration of music programs.

MUED 5516. Instrumental Methods and Materials I. (; 3 cr. ; A-F only; Every Spring)
Instrumental methods and materials as part of licensure to work in K-12 settings per legislated standards. Sight-singing, classroom management, adolescent development, instrumental conducting skills, repertoire, and rehearsal techniques. 25 hours of practicum at the middle school level. Applications of

technology. First of two required semesters. prereq: MUED 1201, MUS 4504, and MUS 4514 with a grade of C- or better, music education major, successful completion of Music Education sophomore proficiency exam

MUED 5517. Instrumental Methods and Materials II. (; 3 cr. ; A-F only; Every Fall)
Instrumental methods and materials as part of licensure to work in K-12 settings per legislated standards. Sight-singing, classroom management, adolescent development, instrumental conducting skills, repertoire, and rehearsal techniques. 25 hours of practicum at the middle school level. Applications of technology. Second of two required semesters. prereq: MUED 5517, MUED 1201, MUS 4504, and MUS 4514 with a grade of C- or better, music educ major, completion of the Music Education sophomore proficiency exam

MUED 5519. Advanced Conducting and Repertoire (Instrumental). (; 2 cr. ; A-F only; Every Fall)
The Advanced Conducting (Instrumental) course continues exploration of the many facets of the role of a conductor (within orchestral and wind band areas), conducting philosophies, and conducting and rehearsal techniques for instrumental ensembles. Students advance in knowledge of score study, analysis, non-verbal communication skills, body awareness, repertoire selection, and rehearsal techniques. Advanced Conducting is offered in annually in the fall semester. Pre-req: MUED 5416 (Choral/Vocal Methods and Materials II) MUS 3401 (Basic Conducting) MUS 4504 (Intensive Theory and Analysis of 20th-Century Music) MUS 4514 (Ear-Training and Sight-Singing for 20th-Century Music) music major or instructor approval

MUED 5550. Student Teaching in Instrumental Music. (; 4-8 cr. ; A-F or Audit; Every Fall & Spring)
Supervised teaching and observing of instrumental music in elementary, junior high, and senior high schools. Weekly seminar emphasizing classroom management, curriculum development, and administration of music programs.

MUED 5650. Student Teaching Seminar. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Reflective practice during student teaching. Developing materials for professional employment (e.g., resume, portfolio). prereq: At least C- in all required [music, music education, professional education] courses

MUED 5669. Psychology of Music. (; 3 cr. ; A-F or Audit; Every Fall)
Basic study of the psychology and psychoacoustics of music including hearing, music perception and cognition, values and preferences, musical abilities, musical systems, media music effects, the influence of music on human behavior, and psycho-socio-physiological processes involved in musical behavior. prereq: Psy 1001 or Psy 3604 or instr consent

MUED 5750. Topics in Music Education. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall & Spring)
Focuses on single topic, specified in Class Schedule.

MUED 5800. Group Music Leadership Skills. (; 3 cr. ; A-F or Audit; Every Spring)
Role of group music experiences in human development. Relations specific to music therapy. Students develop repertoire of music applications/techniques for various age groups/populations. Standards for group leadership. Precision teaching skills. prereq: [[Completion of [MUS 1151, MUS 1152] or MUS 1155], music therapy major] or instr consent

MUED 5803. Therapeutic Management in Music Settings. (; 4 cr. ; A-F only; Every Fall)
Cognitive behavioral methodology related to music therapy and music education settings. Prepares students to complete case studies mandated for internship completion set forth by American Music Therapy Association. prereq: [5804, 5805] or instr consent

MUED 5804. Music Therapy Methods and Procedures I. (; 4 cr. ; A-F or Audit; Every Fall)
Methods/procedures for developing basic music therapy competencies/professionalism. Music therapy populations, their clinical needs. How to use music therapy in an evidence-based approach to meet client objectives. prereq: 5800 or instr consent

MUED 5805. Music Therapy Methods and Procedures II. (; 4 cr. ; A-F only; Every Spring)
Second course in professional sequence for music therapy. Topics include psychotherapy techniques and other music therapy approaches. Practicum in the community, in-class lab. prereq: 5804 or instr consent

MUED 5806. Career Preparation. (; 4 cr. ; A-F or Audit; Every Spring)
Ethics, grant writing, resume/CV preparation, supervision, board certification, professional responsibilities. Students design evidence-/research-based music therapy program, present their proposals to class/community. prereq: 5805 or instr consent

MUED 5807. Psychiatric Music Therapy. (; 3-4 cr. ; A-F only; Every Fall)
Psychiatric populations. How music therapy can be implemented as evidence-based practice. Students design original research and role-play music therapy interventions for psychiatric populations. Practicum component on designing music therapy interventions. Graduate students registering for this course should enroll for 4 credits. Undergraduate students registering for this course should enroll for 3 credits. prereq: Grad music therapy student or instr consent

MUED 5808. Medical Music Therapy. (; 3-4 cr. ; A-F only; Every Spring)
Role/scope of music therapy in medical treatment. Medical diagnoses. How to program appropriate music therapy interventions to address patient needs. prereq: Grad music therapy major or instr consent

MUED 5855. Music Therapy Internship. (; 1-13 cr. ; S-N or Audit; Every Fall & Spring)
Six-month resident internship in music therapy at an affiliated, approved hospital or clinic. prereq: Music therapy major, instr consent

MUED 5991. Independent Study. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study project organized by the student in consultation with the appropriate instructor. prereq: Music ed or music therapy major or grad, instr consent, dept consent

Natural Resources Sci and Mgmt (NR)

NR 5021. Statistics for Agricultural and Natural Resource Professionals. (3 cr. ; Student Option; Every Fall)
The primary audience for this course is graduate students in the agricultural, environmental, natural resources, and other related programs that need competence in statistics. The subject matter will be approaches and applications involving analysis of data using common statistical methods, e.g., describing and visualizing data, the design of single factor experiments, linear modeling, and the ability to examine journal articles in their field and assess their content in a critical manner. prereq: College algebra

Naval Science (NAV)

NAV 1000. Professional Training in Naval Science. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Instruction and training in basic military subjects and professional development, including military leadership, close order drill, marksmanship, honors and ceremonies, personnel inspections, and computer-based war game simulations. Classes and small group seminars on leadership and ethical issues with case studies. prereq: enrolled in NROTC

NAV 1101. Introduction to Naval Science. (; 3 cr. ; A-F or Audit; Every Fall)
Navy organization, customs and traditions, officer and enlisted rank and rating structures, uniforms and insignia, shipboard duties, seamanship, damage control, and safety. Core values of the naval services, Navy regulations, and the Uniform Code of Military Justice.

NAV 1102. Seapower and Maritime Affairs. (; 3 cr. ; A-F or Audit; Every Spring)
Historical influences on development of U.S. Navy, from American Revolution to present. Critical, contemporary issues.

NAV 2000. Professional Training in Naval Science. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Instruction and training in basic military subjects and professional development, including military leadership, close order drill, marksmanship, honors and ceremonies, personnel inspections, and computer-based war game simulations. Classes and small group seminars on leadership and ethical issues with case studies. prereq: Soph enrolled in NROTC

NAV 2201. Ship Systems I: Naval Engineering. (; 3 cr. ; A-F or Audit; Every Spring)
Detailed study of ship characteristics/ types. Design, hydrodynamic forces, stability, compartmentation, propulsion, electrical/auxiliary systems, damage control, administration. Basic concepts of theory/ design for steam, gas turbine, diesel, nuclear propulsion.

NAV 2202. Ship Systems II: Science and Technology in Naval Weapons Systems. (; 3 cr. ; A-F or Audit; Every Fall)
Detection, evaluation, threat analysis, weapon selection, delivery, guidance, explosives. Physical aspects of radar, underwater sound. Facets of command, control, communications as means of weapons system integration.

NAV 3000. Professional Training in Naval Science. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Instruction and training in basic military subjects and professional development, including military leadership, close order drill, marksmanship, honors and ceremonies, personnel inspections, and computer-based war game simulations. Classes and small group seminars on leadership and ethical issues with case studies. prereq: Jr enrolled in NROTC

NAV 3301. Navigation I: Piloting and Celestial Navigation. (; 3 cr. ; A-F or Audit; Every Fall)
Great military leaders of history. Development of warfare, from dawn of recorded history to present. Focuses on effect of major military theorists, strategists, tacticians, technological developments.

NAV 3302. Navigation II: Seamanship and Ship Operations. (; 3 cr. ; A-F or Audit; Every Spring)
National/international nautical rules of the road, seamanship, tactical maneuvering/signaling, relative motion, vector-analysis, formation tactics, ship employment, ship behavior/ characteristics. Application of maneuvering board in solving motion problems. prereq: 3301

NAV 3309. Fundamentals of Maneuver Warfare. (3 cr. ; A-F or Audit; Fall Even Year)
Fundamentals of Maneuver Warfare (FMW) is a detailed look at broad aspects of warfare and their interactions with maneuver warfare doctrine, with a focus on the United States Marine Corps. Throughout the course there is a strong focus on Leadership, as the fundamental purpose of this course is to develop the skills, knowledge, leadership background and mentality necessary for a successful Marine Corps Officer.

NAV 3310. Evolution of Warfare. (; 3 cr. ; A-F or Audit; Periodic Fall)
Great military leaders of history. Development of warefare, from dawn of recorded history to present. Focuses on effect of major military theorists, strategists, tacticians, technological developments.

NAV 4000. Professional Training in Naval Science. (1 cr. [max 4 cr.] ; S-N or Audit; Every Fall & Spring)
Instruction and training in basic military subjects and professional development, including military leadership, close order drill, marksmanship, honors and ceremonies, personnel inspections, and computer-based war game simulations. Classes and small group seminars on leadership and ethical issues with case studies. prereq: Sr enrolled in NROTC

NAV 4401W. Leadership and Management I. (WI; 3 cr. ; A-F or Audit; Every Fall)
Advanced study of organizational behavior/ management. Major behavioral theories examined in detail. Practical applications. Exercises, case studies, seminar discussions.

NAV 4402W. Leadership and Ethics. (CIV,WI; 3 cr. ; A-F or Audit; Every Spring)
Junior officer role. Responsibilities faced as leader, manager, professional officer of Naval Services. Develops specific competencies in areas of leadership, management, professional administration, development. Emphasizes Naval Service ethics, core values. prereq: NAV 4401W

Neurology (NEUR)

NEUR 5121. Descriptive Neurology. (; 2 cr. ; O-N or Audit; Every Spring)
Central and peripheral nervous system. Correlation of neuroanatomy, neurophysiology, clinical neurology, and pathology of the nervous system. prereq: enrolled OT or PT

NEUR 5230. Cerebrovascular Hemodynamics and Diseases I. (; 4 cr. ; A-F only; Every Fall)
Principles of cerebrovascular disease/ pathophysiology, hemodynamics, diagnostic imaging, and endovacular devices. Bench-to-bedside experiments. Clinical trials, including design constraints and biostatistics. prereq: [[PHSL 3051 or PHSL 3063], [MATH 1271 or MATH 1371], [MATH 1272 or MATH 1372], [PHYS 1201W or PHYS 1301W], instr consent] or [grad student, [PHSL 5061 or instr consent]]

Neuroscience (NSC)

NSC 5031W. Perception. (WI; 3 cr. ; Student Option; Periodic Fall)
Cognitive, computational, and neuroscience perspectives on visual perception. Color vision, pattern vision, image formation in eye, object recognition, reading, impaired vision. Course is biennial: offered fall of odd years. prereq: Psy 3031 or Psy 3051 or instr consent

NSC 5040. Brain Networks: From Connectivity to Dynamics. (; 4 cr. ; A-F or Audit; Fall Odd Year)
Brain networks. Application of emerging science of complex networks to studies of the brain. Network approaches that provide fundamental insights into the integrative nature of brain function and its relation to the brain structure. Organization of brain networks and dynamics at multiple spatial scales, ranging from the microscale of single neurons and synapses, to mesoscale of anatomical cell groupings and their projections, and to the macroscale of brain regions and pathways. Experimental studies, including electrophysiology, voltage-sensitive dye imaging, electroencephalography, magnetoencephalography, and functional magnetic resonance imaging, that allow mapping network elements and structural/ functional connectivity between them at different temporal and spatial scales will be considered. Experimental/theoretical perspectives.

NSC 5202. Theoretical Neuroscience: Systems and Information Processing. (; 3 cr. ; Student Option; Every Spring)
Concepts of computational/theoretical neuroscience. Distributed representations and information theory. Methods for single-cell modeling, including compartmental/integrate-and-fire models. Learning rules, including supervised, unsupervised, and reinforcement learning models. Specific systems models from current theoretical neuroscience literature. Lecture/discussion. Readings from current scientific literature. prereq: [3101, 3102W] recommended

NSC 5203. Basic and Clinical Vision Science. (; 3 cr. ; Student Option; Spring Even Year)
Basic and clinical vision science. prereq: instr consent

NSC 5461. Cellular and Molecular Neuroscience. (; 4 cr. ; A-F or Audit; Every Fall)
Lectures by team of faculty, problem sets in important physiological concepts, discussion of original research papers. prereq: NSc grad student or instr consent

NSC 5462. Neuroscience Principles of Drug Abuse. (; 2 cr. ; Student Option; Periodic Spring)
Current research on drugs of abuse, their mechanisms of action, characteristics shared by various agents, and neural systems affected by them. Offered biennially, spring semester of even-numbered years. prereq: instr consent

NSC 5540. Survey of Biomedical Neuroscience. (2 cr. ; A-F or Audit; Every Summer)
Current topics in biomedical neuroscience, accompanied by supporting, fundamental concepts. Intensive, one week course. prereq: instr consent, intended for members of biomedical community or students with advanced scientific backgrounds

NSC 5551. Itasca Cell and Molecular Neurobiology Laboratory. (; 4 cr. ; S-N or Audit; Every Summer)
Intensive lab introduction to cellular and molecular aspects of research techniques in contemporary neurobiology; held at Itasca Biological Station. Electrophysiological investigations of neuronal properties, neuropharmacological assays of transmitter action, and immunohistochemical studies in experimental preparations. prereq: Neuroscience grad or instr consent

NSC 5561. Systems Neuroscience. (; 4 cr. ; A-F or Audit; Every Fall)
Principles of organization of neural systems forming the basis for sensation/movement.

Sensory-motor/neural-endocrine integration. Relationships between structure and function in nervous system. Team taught. Lecture, laboratory. prereq: NSc grad student or instr consent

NSC 5661W. Behavioral Neuroscience. (WI; 4 cr. ; A-F or Audit; Every Spring)
Neural coding/representation of movement parameters. Neural mechanisms underlying higher order processes such as memorization, memory scanning, and mental rotation. Emphasizes experimental psychological studies in human subjects, single cell recording experiments in subhuman primates, and artificial neural network modeling. prereq: Grad NSc major or grad NSc minor or instr consent

Neuroscience Department (NSCI)

NSCI 1001. Fundamental Neuroscience: Understanding Ourselves. (TS; 3 cr. ; A-F only; Every Fall & Spring)
Assessing objectively the neuroscience information presented to public at-large across various media outlets. Explaining the potential importance of these discoveries.

NSCI 1002. Social Neuroscience: Understanding Others. (3 cr. ; A-F only; Every Spring)
The field of neuroscience makes a special contribution to our understanding of the human condition, as it can both help us understand ourselves and also how we interact in a world of other individuals. Historically, there has been a dichotomy between disciplines that identify the abstract principles of the social world we live in and the biology of the organ (i.e., the central nervous system) we use to identify and coordinate those abstract principles as we function in our daily lives. By merging these disciplines and studying our interactions with the world on many layers of analysis, from genes to social dynamics, we can develop a richer understanding of who we are as people. prereq: None

NSCI 2001. Human Neuroanatomy (without a lab). (; 3 cr. ; Student Option; Every Spring)
This course will provide a broad introduction to the nervous system with an emphasis on the human nervous system. The course will introduce the structure and function of neurons, the major anatomical parts of the nervous system and the main functional systems. Functional systems will be approached through an understanding of the anatomical circuitry. The fundamental concepts of neurochemical communication studied in general terms in the first part of the course will be re-examined relative to specific functional systems later in the course. Although the major focus of the course will be on the normal nervous system, common diseases will be introduced for each main topic. Students will gain an understanding of the nature of many neurological diseases, which will provide further insight into how the normal nervous system functions. The neuronal substrates of learning/memory, addiction and drug actions will be examined. Through the lectures, discussions and other resources, students will be expected to gain an understanding of the neural circuitry and information processing responsible for the diverse range of human behaviors. The material covered in Nsci 2001 and 2100 is very similar. N2100 is taught only fall semester. It is a traditional lecture course that includes a weekly laboratory. The faculty believe that the laboratory is a valuable part of the course. N2001 is taught only spring semester for those who cannot take the fall course. It does not have a lab, but has the advantage of a flipped format. In N2001, students will be expected to watch the assigned lectures prior to coming to class. Class time will be spent on exercises and discussions that use the material presented in the online lectures. Students who take one of these two courses will not be allowed to take the other course. For more information, see http://mcloonlab.neuroscience.umn.edu/2001/index.htm

NSCI 2101. Human Neuroanatomy. (BIOL; 4 cr. ; A-F only; Every Fall)
This course will provide a broad introduction to the nervous system with an emphasis on the human nervous system. The course will introduce the structure and function of neurons, the major anatomical parts of the nervous system and the main functional systems. Functional systems will be approached through an understanding of the anatomical circuitry. The fundamental concepts of neurochemical communication studied in general terms in the first part of the course will be re-examined relative to specific functional systems later in the course. Although the major focus of the course will be on the normal nervous system, common diseases will be introduced for each main topic. Students will gain an understanding of the nature of many neurological diseases, which will provide further insight into how the normal nervous system functions. The neuronal substrates of learning/memory, addiction and drug actions will be examined. Through the lectures, laboratory exercises and other resources, students will be expected to gain an understanding of the neural circuitry and information processing responsible for the diverse range of human behaviors. The material covered in Nsci 2001 and 2100 is very similar. N2100 is taught only fall semester. It is a traditional lecture course that includes a weekly laboratory. The faculty believe that the laboratory is a valuable part of the course. N2001 is taught only spring semester for those who cannot take the fall course. It does not have a lab, but has the advantage of a flipped format. In N2001, students will be expected to watch the assigned lectures prior to coming to class. Class time will be spent on exercises and discussions that use the material presented in the online lectures. Students who take one of these two courses will not be allowed to take the other course. For more information, see http://mcloonlab.neuroscience.umn.edu/2100/index.htm

NSCI 3001W. Neuroscience and Society. (CIV,WI; 4 cr. ; A-F only; Every Spring)
Ethical implications. Readings, personal reflections, class discussions, debates, and formal writing. Development of logical arguments, writing skills, oral presentation skills, and teamwork. Students present/argue both their own personal views and those of others. What it is like to have altered mentation, i.e. a brain disease or disability. Readings/multimedia reports from primary neuroscience literature as well as philosophy, policy, and law literature and popular media.

NSCI 3101. Neurobiology I: Molecules, Cells, and Systems. (3 cr. ; A-F or Audit; Every Fall & Spring)
New: This course discusses the basic principles of cellular and molecular neurobiology and nervous systems. The main topics include: Organization of simple networks, neural systems and behavior; how the brain develops and the physiology and communication of neurons and glia; the molecular and genetic basis of cell organization; ion channel structure and function; the molecular basis of synaptic receptors; transduction mechanisms and second messengers; intracellular regulation of calcium; neurotransmitter systems, including excitation and inhibition, neuromodulation, system regulation, and the cellular basis of learning, memory, and cognition. The course is intended for students majoring in neuroscience, but is open to all students with the required prerequisites. Enrollment Requirements: Biol 3025 or Biol 3015 OR concurrent/previous BioC 3021/3022/4331 or equivalent. Nsci 2001/2100 highly recommended.

NSCI 3102W. Neurobiology II: Perception and Behavior. (WI; 3 cr. ; A-F or Audit; Every Spring)
This is the second of the introductory neurobiology courses. It introduces fundamental concepts in systems and behavioral neuroscience with emphasis on the neural circuits underlying perception and sensorimotor integration. Lectures will examine the neural basis of specific behaviors arising from the oculomotor, visual and auditory systems and notes are available on Canvas. Topics include: retinal processing, functional organization in the cerebral cortex, neural circuit development, language, reward, and addiction. Students must learn to read scientific papers, and to understand the main ideas well enough to synthesize them and communicate them both orally and in writing. The course is writing intensive: exams are in essay and short answer format, and a 10-15 page term paper is required. The course is required for students majoring in neuroscience. The course consists of two hours of lecture and one hour of discussion per week.

NSCI 3505. Mind and Brain. (3 cr. ; A-F only; Every Spring)
This course is intended as an introduction to the new views on the relationship between mind and brain. Over the last several decades, a new view of cognition and neural processing has been developed based on the concepts of al?gorithm, representation, computation, and information processing. Within this theoretical frame?work, psychological constructs are computational processes occur?

ring across physical neural systems. We will take a neuroscience and psychological perspective in which the physical neuroscience instantiates but does not diminish the psychological constructs. Although our conceptual framework will be computational, this course will not require or expect any mathematical or computer background. At the completion of this class, you will understand the implications of the physical nature of the brain ? how mentation is explicable from physical processes, and how decision-making arises from those same physical processes. Importantly, you will also understand the limitations of current knowledge and the methodologies being used to push those limitations. This class is not intended as a final step in this understanding, but as a first step into these issues. At the conclusion of the class, you should have sufficient understanding to continue more in-depth reading and study in these issues. There are no official prerequisites. However, I have found that students who have EITHER a strong computational background (computer science, mathematics, economics, physics) OR have taken an introductory neuroscience course (e.g. Nsci 2100) have done better in the class than students with no background. However, I have seen students come in with very little background and do well in the class if they engage with the class and work hard.

NSCI 4101. Development of the Nervous System: Cellular and Molecular Mechanisms. (; 3 cr. ; A-F only; Every Fall)
This course will extend students? understanding of fundamental concepts of biology and neuroscience through study of the cellular and molecular mechanisms that underlie development of the nervous system. Neurodevelopment provides a context in which to study processes active in many biological functions and diseases. Students will learn about each of the major cellular processes involved in development of the nervous system such as cell division and cell migration, and will learn about the function of molecules and signaling pathways active in each process. Human developmental pathologies will be studied as a means to better understand normal developmental processes. Some lectures will focus on current research, and students will be expected to read some scientific literature.

NSCI 4105. Neurobiology Laboratory I. (; 3 cr. ; A-F or Audit; Every Fall)
Principles, methods, and laboratory exercises for investigating neural mechanisms and examining experimental evidence.

NSCI 4150. Advanced Topics in Neuroscience. (; 1-3 cr. [max 9 cr.] ; A-F or Audit; Periodic Spring)
In-depth study of aspects of neurodevelopment, neurochemistry/molecular neuroscience, sensory systems, motor control, and behavioral neuroscience. Primarily for undergraduates majoring in neuroscience or related areas.

NSCI 4201. Neuroscience of Drug Abuse. (3 cr. ; A-F only; Every Spring)
The use and abuse of illicit drugs is an ongoing and insidious world problem. Neuroscience research has contributed importantly to understanding drug abuse as a disease of the nervous system. The goal of this course will be to provide a clinical characterization of drug abuse from a human perspective. From there animal models of drug use and addiction will be discussed as a basis for research examining cellular and molecular mechanisms of the effects of drugs on the nervous system. As all drugs of abuse have a common neurobiology, that neurobiology will be examined from a circuit perspective that will include the underlying molecular control. Collectively students should develop a comprehensive view of the problem of drug addiction including prospects for the development of neurobiologically-based therapeutics.

NSCI 4501. Neurodegenerative Diseases, Mechanisms to Therapies. (3 cr. ; A-F only; Every Spring)
With a rapid increase in population aging in western educated industrialized rich democratic (WEIRD) societies, neurodegenerative disorders such as Alzheimer?s disease have become an alarming health priority due to the current absence of disease-modifying therapies. The objective of this course is to acquire a fundamental appreciation for the most common degenerative disorders of the nervous system as well as to integrate central notions shared across these diseases and emerging concepts in the field

NSCI 4793W. Directed Studies: Writing Intensive. (WI; 1-6 cr. [max 42 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Individual study of selected topics. Emphasis on readings, use of scientific literature. Writing intensive. prereq: instr consent, dept consent; no more than 7 cr of [4793, 4794, 4993, 4994] may count toward major requirements

NSCI 4794W. Directed Research: Writing Intensive. (WI; 1-6 cr. [max 42 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Lab or field investigation of selected areas of research. Writing intensive. prereq: instr consent, dept consent; no more than 7 cr of [4793, 4794, 4993, 4994] may count toward major requirements

NSCI 4993. Directed Studies. (; 1-7 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Individual study of selected topics with emphasis on selected readings and use of scientific literature. prereq: instr consent, dept consent; max of 7 cr of 4993 and/or 4994 may count toward major requirements

NSCI 4994. Directed Research. (; 1-6 cr. [max 42 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Lab or field investigation of selected areas of research. prereq: instr consent, dept consent; max of 7 cr of 4993 and/or 4994 may count toward major requirements

NSCI 5101. Neurobiology I: Molecules, Cells, and Systems. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
This course discusses the basic principles of cellular and molecular neurobiology and nervous systems. The main topics include: Organization of simple networks, neural systems and behavior; how the brain develops and the physiology and communication of neurons and glia; the molecular and genetic basis of cell organization; ion channel structure and function; the molecular basis of synaptic receptors; transduction mechanisms and second messengers; intracellular regulation of calcium; neurotransmitter systems, including excitation and inhibition, neuromodulation, system regulation and the cellular basis of learning, memory and cognition. The course is intended for students majoring in neuroscience, but is open to all students with the required prerequisites.

NSCI 5110. Dental Neuroscience for Graduate Students. (; 2 cr. ; A-F or Audit; Every Spring)
Structure/function of human nervous system. Lectures and reading assignments emphasize topics pertinent to dentistry. prereq: Credit will not be granted if credit has been received for: : 6110; BioC 3021, Biol 4004, instr consent; intended for grad students who require a comprehensive grad-level neuroscience course

NSCI 5111. Medical Neuroscience for Graduate Students. (; 5 cr. ; A-F or Audit; Every Spring)
Survey of molecular, cellular, and systems neuroscience as related to medicine. Lecture/lab. prereq: Credit will not be granted if credit has been received for: : 6111; BioC 3021, Biol 4004, instr consent; intended for grad students who require a comprehensive medically-oriented neuroscience course

NSCI 5501. Neurodegenerative Diseases, Mechanisms to Therapies. (3 cr. ; A-F only; Every Spring)
With a rapid increase in population aging in western educated industrialized rich democratic (WEIRD) societies, neurodegenerative disorders such as Alzheimer?s disease have become an alarming health priority due to the current absence of disease-modifying therapies. The objective of this course is to acquire a fundamental appreciation for the most common degenerative disorders of the nervous system as well as to integrate central notions shared across these diseases and emerging concepts in the field.

NSCI 5551. Statistical Foundations of Systems Neuroscience. (3 cr. ; A-F only; Spring Even Year)
The purpose of this course is to provide the student with a familiarity with the mathematical and statistical techniques to practice contemporary systems neuroscience. Topics are chosen with a focus on current areas of active research, as well as problems that have driven the field over the past twenty years. The class will combine lectures with discussions of important systems neuroscience papers, and will move at a fast pace. It is intended for graduate students and ambitious undergraduates. One major difference between this course and other math and statistics courses is the focus on systems neuroscience.

Our examples will come from the Systems Neuroscience field. Our research priorities will come from Systems Neuroscience and our Friday paper discussions will draw exclusively from scholarly papers in Systems Neuroscience.

NSCI 5916. BrainU 101: Neuroscience in the Classroom. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Four-weekend workshop. Concepts in neuroscience. Neurobiology of learning. Effects of drugs. Lectures, activities, discussion, designing investigations. In 2009-10, held in Winona. In 2010-11, held in Duluth. prereq: instr consent; intended for high school teachers

Neurosurgery (NSU)

NSU 5667. Neurobiology of Disease. (; 2-3 cr. ; Student Option; Every Fall)
Basic clinical/pathological features, pathogenic mechanisms. Weekly seminar.

Norwegian (NOR)

NOR 1001. Beginning Norwegian. (; 5 cr. ; Student Option; Every Fall)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.).

NOR 1002. Beginning Norwegian. (; 5 cr. ; Student Option; Every Spring)
Continues the presentation of all four language modalities (listening, reading, speaking, writing) with a proficiency emphasis. Topics include free-time activities, careers, and Norwegian culture. prereq: 1001

NOR 1003. Intermediate Norwegian. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. prereq: 1002

NOR 1004. Intermediate Norwegian. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. prereq: 1103

NOR 4001. Beginning Norwegian for Graduate Research. (; 5 cr. ; Student Option; Every Fall)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.). Meets concurrently with 1001.

NOR 4002. Beginning Norwegian for Graduate Research. (; 5 cr. ; Student Option; Every Spring)
Continues the presentation of all four language modalities (listening, reading, speaking, writing) with a proficiency emphasis. Topics include free-time activities, careers, and Norwegian culture. Meets concurrently with 1002.

NOR 4003. Intermediate Norwegian for Graduate Research. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. Meets concurrently with 1003.

NOR 4004. Intermediate Norwegian for Graduate Research. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. Meets concurrently with 1004. prereq: 1004 in another language or passing score on LPE or grad student

Nursing (NURS)

NURS 1030. Nursing First Year Seminar I. (1 cr. ; Student Option; Every Fall)
This course is designed to help each student achieve their individual goals by promoting proactive educational and career planning, introducing students to resources available at the University and in the School of Nursing, and connecting students with academic advisors, faculty, and student groups in the School of Nursing and throughout the University. prereq: Freshman guarantee student, instr consent

NURS 1031. Nursing First Year Seminar II. (1 cr. ; A-F only; Every Spring)
This course will provide the student with opportunities to explore the wide range of opportunities in the nursing profession. Throughout this course students will be asked to reflect on the alignment of their academic decisions; personal strengths, values, and interests; related to their future career in nursing and life goals. This course will allow the student to deepen their understanding of campus engagement, consider supporting coursework to compliment the nursing major, and advance progress toward the BSN degree and future graduate education.

NURS 2001. Human Growth and Development: A Life Span Approach. (3 cr. ; Student Option; Every Fall & Spring)
Theoretical, personal, and culturally determined theories on life span development, from prenatal period through death/dying. Psychoanalytical, behaviorism, cognitive, sociocultural, and epigenetic categories of biosocial, cognitive, and psychosocial domains.

NURS 3115. Health Informatics and Information Technology. (TS; 3 cr. ; A-F only; Every Fall & Spring)
Examine health informatics and information technology from consumer, clinical, and public health perspectives. Develop skills in using information technology to communicate, manage knowledge, mitigate error, and support decision-making.

NURS 3703. Assessment and Beginning Interventions: Nursing Lab 1. (2 cr. ; A-F only; Every Fall)
Psychomotor skills/interventions with focus on therapeutic interventions. Experiential learning activities used to build skill in assessment, planning/implementation of select nursing interventions. Theoretical foundations of nursing interventions. prereq: Admitted to Nurs BSN program

NURS 3705. Nursing Interventions. (2 cr. ; A-F or Audit; Every Spring)
Psychomotor skills/interventions with focus on therapeutic interventions. Experiential learning activities used to build skill in assessment, planning, implementation of select nursing interventions. prereq: 3703, enrolled in School of Nursing

NURS 3710. Statistics for Clinical Practice and Research. (MATH; 3 cr. ; Student Option; Every Fall)
Numerical reasoning, measurement principles. Vital statistics, rates, data description. Probability. Hypothesis testing/confidence intervals for tests on means. Proportions, correlations, linear regression. prereq: [High school algebra or instr consent], students enrolled in School of Nursing must take A/F option

NURS 3801. Patient Centered Care of Adults and Older Adults I. (3 cr. ; A-F only; Every Fall & Spring)
Person-centered evidence based nursing care for adults, including physical/mental health promotion, acute/chronic illness management. Critical analysis of patient needs/planning nursing care. prereq: Admitted to Nurs BSN program

NURS 3802. Patient Centered Care: Nursing Care of Families I. (; 3 cr. ; A-F only; Every Fall & Spring)
Introduction to nursing care of childbearing/ childrearing families. Family theory, family-centered care, and family culture in the context of home and community settings. prereq: Enrolled in School of Nursing

NURS 3802H. Nursing Care of Families I Honors. (; 4 cr. ; A-F only; Every Fall & Spring)
Nursing care of childbearing/childrearing families. Family theory, family-centered care, family culture in the context of home and community settings and therapeutic communication between nurse and patients/ families. prereq: Enrolled nursing student

NURS 3803. Application of Genetics in Nursing. (; 2 cr. ; A-F or Audit; Every Spring)
Application of genetics to the practice of professional nursing. prereq: Enrolled in nursing major

NURS 3806. Nurse as Professional. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Basic nursing concepts, role development, competencies, therapeutic use of self, and communication skills for person-centered care and professional teamwork; beginning development of own nursing philosophy; career

exploration. prereq: Admitted to nursing BSN program

NURS 4104. Ethical Sensitivity and Reasoning in Health Care. (CIV; 2 cr. ; A-F only; Every Fall)
Developing sensitivity to range/complexity of ethical issues/dilemmas in health care. Ethical principles/theories. Key ethical concepts in addressing morally troubling issues in health care settings.

NURS 4106. Nurse as Collaborator. (; 1 cr. ; A-F only; Every Fall)
Examination of evidence-based teamwork systems and processes to improve communication and collaboration among health care professionals. prereq: Enrolled in nursing program

NURS 4205V. Honors: Nursing Theory and Research. (WI; 3 cr. ; Student Option; Every Spring)
Knowledge basic to discipline/practice of nursing. Relationships among research, theory, practice. Introduction to research process, with attention to use of research in practice. Students develop honors research proposal. prereq: Nurs honors

NURS 4205W. Nursing Theory and Research. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Examination of the knowledge basic to the discipline and practice of nursing. The relationships among research, theory, and practice are discussed. The research process is introduced to assist with understanding the utilization of research in practice. prereq: Undergrad in nursing

NURS 4301. Person Centered Care of Adults and Older Adults II. (4 cr. ; A-F only; Every Fall & Spring)
Person-centered evidence based nursing care for adults with complex physical and mental health illnesses. Critical analysis of multiple complex patient needs. Planning nursing care. prereq: 3801, 3802, 3703, 3705, enrolled in School of Nursing

NURS 4303. Practicum: Person Centered Care of Adults in Acute Care. (; 3 cr. ; A-F only; Every Fall & Spring)
Clinical reasoning is applied to the nursing care of young through older adults in acute care. Evidenced based practice and clinical reasoning to provide person centered care within the health system environment. prereq: 3703, 3705, 3801, [3802 or 3802H], enrolled in nursing

NURS 4305. Practicum: Community-based Care of Families Across Life Span. (; 3 cr. ; A-F only; Every Fall & Spring)
Examine an evidence-based teamwork system to improve communication and teamwork skills among health care professionals. prereq: 3703, 3705, 3801, [3802 or 3802H], enrolled Nurs student

NURS 4312. Patient Centered Care: Nursing Care of Families II. (; 4 cr. ; A-F only; Every Fall & Spring)
Family centered care theory applied to care of childbearing, childrearing families in acute care setting. High risk pregnancy. Child response to illness/hospitalization. prereq: 3802, enrolled nursing student

NURS 4321. Public Health Nursing. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Concepts of epidemiology, systems theory, and social justice applied to population-based nursing care. Public health nursing competencies and principles of community assessment. Public health nursing practice models and evidenced-based nursing interventions. prereq: jr nursing student

NURS 4402. Taking Ethical Action in Health Care. (CIV; 1 cr. ; A-F only; Every Fall)
Ethical dimensions/role obligations of health care professionals related to selected social issues with health consequences. prereq: Senior undergrad nursing student, [4104 or instr consent]

NURS 4404V. Honors: Applied Research and Research Utilization. (WI; 3 cr. ; A-F only; Every Fall)
Systematic inquiry in interpreting/evaluating research. Implement study proposed in Nurs4205V. Write scholarly research report, which will serve as honors research thesis. prereq: Honors student in School of Nursing, Nurs 4205V, upper division statistics course

NURS 4435. Immunization Tour. (1 cr. ; S-N or Audit; Every Fall)
The focus of this course is interprofessional collaboration, teams and teamwork, roles and responsibilities, and ethical issues as nursing and pharmacy public health professionals. Students operate mobile influenza immunization clinics for faculty, staff and students across the UMN Twin Cities campus. prereq: [Senior Bachelor of Science nursing student or professional master's nursing student], completion of CPR

NURS 4701. Advanced Nursing Across the Lifespan. (3 cr. [max 4 cr.] ; A-F only; Every Fall)
Examines person-centered evidence based nursing care for persons across the lifespan considering the underlying pathophysiology and pharmacological interventions in complex physical and mental health illnesses. Emphasis is on critical analysis of complex patient needs and planning and prioritizing nursing care.

NURS 4703. Specialty Focused Practicum I. (2 cr. [max 4 cr.] ; A-F only; Every Fall)
Person-centered nursing care that is safe, effective, holistic, culturally sensitive. prereq: Nursing student in School of Nursing

NURS 4704. Continuum of Care Practicum. (; 2 cr. ; A-F only; Every Fall)
Care coordination/relationship of acute, home, community services. Populations may include chronically ill, all ages (aging adults, pediatric), culturally diverse/healthy communities. prereq: Nursing Student in School of Nursing

NURS 4705. Specialty Focused Practicum II. (; 6 cr. ; A-F or Audit; Every Spring)
Synthesis of previous learning while providing to high quality nursing care that is safe, ethical, evidence-based, holistic, culturally sensitive, and person-centered in selected clinical specialty. Application of professional nursing values to clinical practice. Preceptor led. prereq: 4703, sr in good standing in BSN prereq: 4703, sr in good standing in BSN

NURS 4706. Transition to Practice. (; 1 cr. ; A-F or Audit; Every Fall & Spring)
Professional and legal issues necessary to the transition into nursing practice; strategies for lifelong learning and nursing career trajectories in preparation for entry into practice in a complex health care system. prereq: Sr in BSN program

NURS 4707. Nursing Leadership: Professional Practice in Complex Systems. (; 2 cr. ; A-F only; Every Spring)
Leadership skills for safe effective practice as a new graduate nurse; issues affecting nursing practice; leadership attributes, e.g., creating effective teams, confident interaction with others, resolving conflict, managing resources, leadership for assuring patient safety and quality care. prereq: Sr enrolled in BSN program

NURS 4777W. Senior Project in the Nursing Major. (WI; 3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
Application of evidence-based practice and the relationship to research, quality improvement, and safety leading to improved patient, population, or system outcomes. Scholarly exploration of a clinical problem or system issue from a nursing perspective that culminates in a professional presentation. prereq: 4205W or 4205V

NURS 4800. Nursing Topics. (; 0-16 cr. [max 48 cr.] ; Student Option; Every Fall, Spring & Summer)
Exploration of a topic to meet individual student needs. prereq: instr consent

NURS 5011. Interprofessional Diabetes Experience. (; 2 cr. ; A-F only; Every Spring)
Explore diabetes mellitus through active, hands-on learning in an interprofessional environment. Week-long simulated experience of living with diabetes. Online learning activities focused on interprofessional teamwork for optimal care to patients with diabetes. prereq: 2nd or 3rd year in nursing curriculum prereq: 2nd or 3rd year in nursing curriculum

NURS 5014. Examining the Evidence: Forensic Health Care Practices and Opportunities. (2 cr. ; Student Option; Periodic Fall)
Forensic health care, including sexual assault forensic examiners/death investigators. Examine current research regarding these roles. Opportunity for relevant community-based field experiences. prereq: Grad student or undergraduate senior or instr consent

NURS 5016. Critical Reading of Scientific Literature in Adolescent Health. (1 cr. ; Student Option; Every Fall)
Develop skills for critically reading empirical literature within field of adolescent health. Written/oral critiques of core elements of research articles, including literature review, conceptual framework, research questions/ hypotheses, methods, results, discussion, conclusions. prereq: [Grad-level research methods course, inferential statistics course] or instr consent

NURS 5029. Introduction to Nursing Interventions. (; 3 cr. ; A-F only; Every Fall)
Introduction to evidence-based interventions for safe, inclusive, and ethical nursing practice. Active learning activities in laboratory, simulation, are used to build skills to support nursing process.

NURS 5030. Foundational Concepts of Professional Nursing. (; 3 cr. ; A-F or Audit; Every Fall)
Foundation of knowledge for culturally appropriate, ethical, evidence-based nursing practice across the life span. Research/theory that underlie the art/science of professional nursing. Concepts of person, environment, health, and nursing. prereq: Admission to master's in nursing program

NURS 5031. Human Response to Health and Illness: Adults and Elders. (; 4 cr. ; A-F or Audit; Every Spring)
Focus on individual responses to health and illness in the context of families and environments. The clinical component will emphasize the application of the nursing process in adult and older adult populations.

NURS 5032. Human Response to Health and Illness: Children and Childbearing Families. (; 5 cr. ; A-F or Audit; Every Spring)
Focus is on family responses to health and illness. Application of the nursing process in children and childbearing families is emphasized. The family as the unit of care is the focus of a seminar.

NURS 5033. Population-Focused Health in Public Health and Mental Health Nursing. (; 5 cr. ; A-F or Audit; Every Summer)
Focus on population- based public health and mental health nursing practice across the lifespan, with local to global perspectives. Emphasis on health equity, health promotion and levels of disease prevention. Apply theory and research to examine interventions and outcomes.

NURS 5034. Transition to Professional Nursing Practice. (3 cr. ; A-F or Audit; Every Fall)
Critical analysis of issues affecting the transition to professional nursing practice including those related to the quality of healthcare, quality improvement, and the ability of nurses to improve patient outcomes across settings. prereq: Nurs 5033, Nurs 6200

NURS 5035. Practicum Nursing Care for Complex Health Conditions. (4 cr. ; A-F or Audit; Every Fall)
Clinical decision-making, comprehensive nursing care of clients with complex health problems. In collaboration with a clinical preceptor and a faculty advisor, students develop an individualized learning contract. prereq: Nursing postbaccalaureate certificate program or master of nursing program

NURS 5115. Interprofessional Health Care Informatics. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Implications of informatics for practice, including nursing, public health, and health care in general. Electronic health record issues. Ethical, legislative, political, and global/future informatics issues.

NURS 5116. Consumer Health Informatics. (; 1 cr. ; A-F only; Every Fall & Spring)
Examines issues from consumer's perspective in acquisition, understanding, use or provision of health information. Online strategies for improving health. Impact on consumer-provider relationships/ethical and legal issues. prereq: Grad student or instr consent

NURS 5117. Consumer Health Informatics Practicum. (; 1 cr. ; S-N only; Every Fall)
Apply student knowledge to analysis of health needs and consumer health principles, theories, and research to a consumer health informatics project. prereq: [Grad student, [5116 or concurrent registration is required (or allowed) in 5116]] or instr consent

NURS 5120. Palliative Care for Children. (; 1 cr. ; Student Option; Every Summer)
Physical, psychosocial, and spiritual needs of children with life-limiting conditions. Family centered approach. Holistic assessment/intervention for child/family, within interdisciplinary health care team. prereq: instr consent

NURS 5190. Essentials of Holistic Health Assessment and Foundational Clinical. (; 3 cr. ; A-F only; Every Fall & Spring)
Introduction to health and physical assessment for safe, culturally sensitive, inclusive, and ethical nursing practice across the life span. Active learning, simulation, and clinical settings are used to develop a holistic approach to nursing process: assessment, diagnosis, outcome, planning, implementation, and evaluation. prereq: Admission to MN Program

NURS 5200. Advanced Holistic Health Assessment for the Advanced Practice Nurse. (; 3 cr. ; A-F only; Every Fall & Summer)
Provides students with advanced holistic health assessment knowledge and skills needed for ANP across the life span. Prepares students to utilize advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings. Integrates Integrates EB data into a comprehensive health assessment. prereq: Admission to advanced practice nursing area of study (DNP or Post-Graduate certificate program), instr consent

NURS 5222. Advanced Human Physiology. (; 2 cr. ; A-F or Audit; Every Fall)
This course will use a systems approach to human physiology and physiologic changes across life span. Emphasizes clinical application using population-specific content related to various specialty areas in advanced practice nursing.

NURS 5225. Psychopharmacology Advanced Practice Psychiatric/Mental Health Nursing. (; 3 cr. ; A-F only; Every Fall & Spring)
Advanced concepts in neuroscience, psychopharmacology, and clinical management related to psychopharmacologic treatment of psychiatric disorders/symptoms. Application to problems in various clinical settings. prereq: 5228 or instr consent

NURS 5226. Advanced Human Pathophysiology. (; 2 cr. ; A-F or Audit; Every Spring)
This course will use a systems approach to human pathophysiology across the life span. Emphasizes clinical application using population-specific content related to various specialty areas in advanced practice nursing.

NURS 5228. Pharmacology for Advanced Practice Nursing. (; 2 cr. ; A-F or Audit; Every Fall)
Overview of pharmacological principles for commonly used medication classes. Each drug class, related physiology. Pharmacodynamics and pharmacokinetics of drug classes and specific medications. prereq: Grad nursing student or instr consent

NURS 5229. Clinical Pharmacotherapeutics. (; 3-4 cr. ; A-F only; Every Spring)
Pharmacokinetics, pharmacodynamics, therapeutic dosages for various age groups. Client patterns of drug use. Prescriptive privileges. Prescription writing for advanced practice nurses. prereq: 5222, [5228 or PHAR 5800], DNP student, instr consent

NURS 5230. Pharmacotherapeutics for Nurse Anesthesia. (4 cr. ; A-F only; Every Spring)
Reviews basic physics, organic and biochemistry of metabolic processes, pharmacodynamics & pharmacokinetics. Detailed description of anesthetic drugs, physiologic mechanisms, side effects, toxicities, metabolism & elimination as outlined on National Certification Examination. Synthesis of pharmacotherapeutics into nurse anesthesia plan of care.

NURS 5241. Nursing Leadership for Effective Practice. (; 2 cr. [max 3 cr.] ; A-F or Audit; Every Fall)
Analysis of leadership theory and application of leadership skills needed for safe and effective practice as a new graduate nurse. Exploration of system issues affecting nursing practice and patient outcomes. prereq: Final sem of MN Program

NURS 5284. Supporting Physiologic Labor and Childbirth for Nurses. (2 cr. ; S-N only; Every Fall & Spring)
Techniques to provide labor support, discussion about doula role and overlap with nursing support. Emphasizing continuous physical and emotional labor support plus information to enhance physiologic birth. Experience providing labor support to women at a clinical facility included.

NURS 5505. Assessment and Support of Women in Labor. (2 cr. ; S-N only; Every Spring)
Self-directed study with goal of working with experienced labor nurses/learning knowledge/ skills required to perform labor. Clinical experience. Completion of selected online modules related to nursing care of women in labor. prereq: Admission to DNP Program

NURS 5604. Advanced Health Assessment and Interventions with Adolescents. (; 2 cr. ; Student Option; Every Summer)

Integrates knowledge from nursing, public health, health behavior, and adolescent development as framework for developing health assessment/intervention strategies for clinical practice with adolescents. prereq: CPsy 5303 or equiv or instr consent

NURS 5611. Database Principles for Healthcare. (; 2 cr. ; A-F only; Every Fall)
Principles of database theory, modeling, design, and manipulation of databases will be introduced, taught with a healthcare applications emphasis. Students will be able to critically evaluate database query methods and results, and understand their implications for healthcare. Course Prerequisites: Graduate student or instructor consent

NURS 5800. Nursing Topics. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Course allows students to study a topic not included in regular courses, or for faculty to offer a course to determine interest in a topic. prereq: instr consent

NURS 5812. Global Health Through Study Abroad. (; 1-2 cr. ; S-N only; Periodic Fall)
Nursing as a global profession and the issues that impact health of populations worldwide. prereq: instr consent

NURS 5830. Advanced Clinical Nursing. (; 1-6 cr. ; Student Option; Every Fall, Spring & Summer)
Independent study or faculty seminar on special clinical topic. prereq: Grad nursing major, instr consent

NURS 5925. Grant Writing and Critique. (; 1 cr. ; Student Option; Every Spring)
Self-paced course. Online modular format. How to write/critique grants. Students select a research or program grant to critique, applying knowledge obtained through learning modules. prereq: Grad student or instr consent

Nutrition (NUTR)

NUTR 5622. Vitamin and Mineral Biochemistry. (; 3 cr. ; Student Option; Every Spring)
Nutritional, biochemical, and physiological aspects of vitamins and essential minerals in human and experimental-animal models. prereq: BioC 3021, Phsl 3051, FSCN 4612

NUTR 5624. Nutrition and Genetics. (; 2 cr. ; Student Option; Every Fall)
Overview of gene-diet interactions and relevant technologies used to study such interactions. Nutrigenomics, epigenetics, transcriptomics, proteomics, metabolomics. Examples of gene-diet interactions, implications. Current issues. Prerequisites: Courses in Nutritional Biochemistry (e.g., NUTR 5625), and Vitamin and Mineral Biochemistry (e.g., NUTR 5622), or consent of instructor

NUTR 5625. Nutritional Biochemistry. (; 3 cr. ; Student Option; Every Fall)
Overview of biochemical molecules and pathways important in nutritional events. prereq: BIOC 3021 or instr consent

NUTR 5626. Nutritional Physiology. (; 3 cr. ; A-F or Audit; Every Spring)
Whole body macronutrient metabolism as it relates to etiology of metabolic diseases. Signaling between tissues to control homeostasis. How dysregulation of crosstalk can lead to metabolic diseases. How diet, exercise, or starvation impact metabolism. Regulation of food intake and energy expenditure. Designing/analyzing/interpreting research data. prereq: NUTR 5625

NUTR 5627. Nutritional and Food Toxicology. (; 3 cr. ; A-F only; Every Spring)
Toxic agents, organisms, and toxic effects that are important in the toxic events, with a focus on food toxicants and nutrient-toxicant interaction. prereq: BIOC 3021; designed for students majoring in [nutrition or food science or toxicology]

NUTR 5993. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

NUTR 5994. Directed Research. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

Occupational Therapy (OT)

OT 1003. Introduction to Occupational Therapy. (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to career of occupational therapy. Overview of profession's domain/process. Work settings, populations served, approaches used by occupational therapist.

OT 5121. Issues in Mental Health. (; 1 cr. ; S-N or Audit; Every Fall)
Psychiatric/neuropsychological assessment/ treatment. Issues related to medical/community management and to roles of OT/PT with respect to clients with mental health needs. Interaction between physical/mental health and disability. prereq: One course gen psych, one course abnorm psych.

OT 5122. Descriptive Neurology. (; 2 cr. ; A-F or Audit; Every Fall)
Relates neuroanatomical/neurophysiological principles to neurological conditions commonly seen in occupational/physical therapy practice. prereq: OT student or instr consent

OT 5161. Theory of Physical Medicine and Rehabilitation Applied to Medical Sciences. (; 2 cr. ; A-F or Audit; Every Fall)
Diagnostic procedures. Medical, surgical, and rehabilitation management of patient problems in orthopedics, surgery, pediatrics, dermatology, medicine, cancer, and speech. Correlation to current practice. Presentation of patients. prereq: OT student or instr consent

OT 5182. Functional Neuroanatomy and Neurophysiology. (; 4 cr. ; A-F or Audit; Every Spring)
Neuroanatomic structures as functional systems, basic neurophysiologic concepts. Emphasizes applications for understanding/ treating physical dysfunctions. prereq: Registered occupational therapy student or instr consent

OT 5300. Concepts for Occupational Therapy Practice. (; 4 cr. ; A-F or Audit; Every Fall)
Critical thinking, ethics, professional resources/ organizations, patient-therapist relationship. Level I fieldwork experience. prereq: enrolled OT student or instr consent

OT 5313. Therapeutic Occupation. (; 4 cr. ; A-F or Audit; Every Fall)
Occupational therapy philosophy, history, and frames of reference. Activity analysis applied to purposeful, therapeutic activities for individuals and groups. prereq: enrolled OT student or instr consent

OT 5341. Introduction: Evaluation and Intervention I. (; 4 cr. ; A-F or Audit; Every Spring)
Assessment concepts/techniques. Application to patient populations with both mental health/ physical disabilities. Treatment planning/ documentation. prereq: 5393 or instr consent

OT 5342. Compensatory Rehabilitation: Evaluation and Intervention II. (; 4 cr. ; A-F or Audit; Every Spring)
Assessment of daily living performance areas; adaptation techniques to compensate for performance deficits. Level I fieldwork experience. prereq: 5300, 5313 or instr consent

OT 5343. Specialty Topics: Evaluation and Intervention III. (; 4 cr. ; A-F or Audit; Every Fall)
Applies critical thinking model to assessment/ intervention of selected patient populations with mental/physical problems requiring specialized approaches. Focus on habilitation/rehabilitation of populations with multiple performance component deficits. Fieldwork. prereq: 5342 or instr consent

OT 5344. Neurorehabilitation: Evaluation and Intervention IV. (; 5 cr. ; A-F or Audit; Every Spring)
Assessment/intervention related to perception, cognition, reflexes, sensory integration, and motor control. Application to individuals with multiple performance component deficits. prereq: 5343 or instr consent

OT 5360. Dynamics of Group Models. (; 2 cr. ; A-F or Audit; Every Fall)
Application of group/team dynamics in diverse professional settings. prereq: 5313 or instr consent

OT 5370. Theory of Occupation. (; 1 cr. ; A-F or Audit; Every Fall)
Occupational therapy frames of reference, role of activity, and historical development of profession. prereq: enrolled OT student or instr consent

OT 5375. Community Resources and Health-Care Issues. (; 2 cr. ; A-F or Audit; Every Fall)
Analysis of community health-care systems, including cultural/family influences on individual health and decision making. Students identify current trends in health care and determine responses to them at social, political, or legislative level. prereq: [5300, 5342] or instr consent

OT 5376. Adult Education and Planning. (; 1 cr. ; A-F or Audit; Every Spring)
Skills needed to plan, implement, and evaluate adult educational programs/materials for patient/family education, peer/professional education, and education of others in order to carry out therapeutic interventions. Student teaching unit, community based activity. prereq: 5313 or instr consent

OT 5380. Management of Occupational Therapy Services. (; 3 cr. ; A-F or Audit; Every Spring)
Administration/management of occupational therapy services within managed care environment. Issues in Medicare, HMOs, TQM, consultation, human resources, promotion of profession. Emphasizes program development in current organizational structures. prereq: [5360, 5375, 5376] or instr consent

OT 5391. Occupation Across the Life Span. (; 3 cr. ; A-F or Audit; Every Spring)
The well elderly, school therapy, work-related injuries/industrial rehabilitation. Fieldwork. prereq: [5375, 5376] or instr consent

OT 5392. Research in Occupational Therapy. (; 3 cr. ; A-F or Audit; Every Spring)
Analysis of scientific literature, development of research proposals. prereq: 5313 or instr consent

OT 5393. Functional Anatomy and Kinesiology. (; 4 cr. ; A-F or Audit; Every Fall)
Gross human anatomy emphasizing skeletal, muscular, circulatory, and peripheral nervous systems of the extremities and trunk. Includes cadaver lab prosections. Analyzing functional human movement from a biomechanical perspective. prereq: enrolled OT student or instr consent

OT 5394. Orthotics. (; 3 cr. ; A-F or Audit; Every Fall)
Analysis, design, and construction of orthotic devices. prereq: 5341 or instr consent

OT 5395. Independent Study in Occupational Therapy. (; 1-4 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent Study in Occupational Therapy prereq: Enrolled OT student or instr consent

Off-Campus Study (OCS)

OCS 3000. Non-affiliated Domestic Program. (; 0-30 cr. ; S-N only; Every Fall, Spring & Summer)
Not printed in catalog. A registration mechanism for students pursuing a unique off-campus study experience through either other educational institutions or through private non-credit granting agencies. Limited to students whose study is approved by University of Minnesota faculty who certify likely departmental credit for successfully completed study as specified by agreement forms signed by both student and faculty. prereq: instr consent

OCS 3550. NSE: National Student Exchange Plan B. (0-20 cr. [max 40 cr.] ; S-N only; Every Fall, Spring & Summer)
National Student Exchange: off-campus study. (Do not publish.) prereq: dept consent

Office of Undergrad Education (OUE)

OUE 1086. The First Year Experience: Fall. (2 cr. ; A-F only; Every Fall)
Awareness of roles, identity, needs, and interactions with diverse groups. Expectations, resources, and challenges associated with transition into college. Speakers, journals/portfolios, technology, reading/ writing assignments, classroom exercises/ experiences.. prereq: 1st-yr student athletes

OUE 1087. The First Year Experience: Summer. (3 cr. ; A-F only; Every Summer)
Awareness of roles, identity, needs, and interactions with diverse groups. Expectations, resources, and challenges associated with transition into college. Speakers, journals/portfolios, technology, reading/ writing assignments, classroom exercises/ experiences. Prereq: 1st-yr student athletes

OUE 2001. Academic Planning and Exploration. (; 1 cr. ; A-F only; Every Fall & Spring)
Undecided and competitive-major students engage in academic and career decision-making process. Students develop an exploratory action plan to help them discover/ declare a best-fit major matching their interests, values, and academic skills. Customized course assignments include self-assessment, reflective essays, and an action plan project.

OUE 3000. Special Topics Course. (; 1-3 cr. ; Student Option No Audit; Periodic Fall, Spring & Summer)
See topics course for course-specific description.

OUE 3050. Introduction to Peer Education. (1 cr. ; Student Option; Every Fall)
Peer cooperative learning. Factors that enhance effectiveness of group learning, including facilitating learning process, integrating learning skill development/ content knowledge acquisition, application of appropriate theories of learning.

OUE 3310. Leadership Development for University Student Leaders. (3 cr. ; S-N only; Every Spring)
This course will provide an opportunity for student orientation leaders to translate theory to practice, using the University of Minnesota Orientation and Welcome Week experience as a learning laboratory. Students will build upon existing self-awareness to further examine their identity, biases, and strengths through the use of critical reflective models and leadership theory concepts. Guest lecturers will share expertise on the topics of leadership, communication, and diversity. Course participants will gain an advanced level of leadership self-awareness and responsibility vital to creating an inclusive and welcoming environment for incoming students and their families.

Ojibwe (OJIB)

OJIB 1100. Ojibwe Immersion. (3 cr. [max 5 cr.] ; Student Option; Every Summer)
Three week course designed to help students with little or no knowledge of Ojibwe language. Introduction to fundamentals of Ojibwe language. Taught primarily in Ojibwe with some grammatical description. Learn to read/write in Ojibwe language.

OJIB 1101. Beginning Ojibwe I. (; 5 cr. ; Student Option; Every Fall)
Speaking. Grammar. Writing systems.

OJIB 1102. Beginning Ojibwe II. (; 5 cr. ; Student Option; Every Spring)
Speaking. Grammar. Writing systems. prereq: 1101

OJIB 3103. Intermediate Ojibwe I. (; 5 cr. ; Student Option; Every Fall)
Speaking. Grammar. Storytelling. Oral history. Translation projects. prereq: 1101, 1102

OJIB 3104. Intermediate Ojibwe II. (; 5 cr. ; Student Option; Every Spring)
Speaking. Grammar. Storytelling. Oral history. Translation projects. prereq: 1102, 1102,3103

OJIB 4101. Beginning Ojibwe I. (; 3 cr. ; Student Option; Every Fall)
Speaking, grammar, writing systems. prereq: community member, see department for permission to enroll.

OJIB 4102. Beginning Ojibwe II. (; 3 cr. ; Student Option; Every Spring)
Speaking. Grammar. Writing systems. prereq: community member, see department for permission to enroll.

OJIB 4103. Intermediate Ojibwe I. (; 3 cr. ; Student Option; Every Fall)
Speaking. Grammar. Storytelling. Oral history. Translation projects. prereq: 1101, 3103, community member, see department for permission to enroll.

OJIB 4104. Intermediate Ojibwe II. (; 3 cr. ; Student Option; Every Spring)
Speaking. Grammar. Storytelling. Oral history. Translation projects. prereq: 1102, 3102, community member, see department for permission to enroll.

OJIB 5106. Advanced Ojibwe Language I. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Fall)
Focuses on immersion method.

OJIB 5109. Advanced Ojibwe Language II. (; 3 cr. [max 12 cr.] ; A-F or Audit; Every Spring)
Focuses on immersion method.

OJIB 5202. Ojibwe Mastery I. (3 cr. ; A-F or Audit; Every Fall)
The purpose of the first three years of the Ojibwe language courses at the University is to introduce students to the most common Ojibwe grammatical and conjugational systems, and to help develop their fluency through immersion. In this course and in the subsequent course in the winter semester, students will work towards Ojibwe language mastery by learning less frequent, but crucial aspects of the Ojibwe language and further working towards a more sophisticated level of talking.

OJIB 5204W. Ojibwe Mastery II. (WI; 3 cr. ; A-F or Audit; Every Spring)
The purpose of the first three years of the Ojibwe language courses at the University is to introduce students to the most common Ojibwe grammatical and conjugational systems, and to help develop their fluency through immersion. In this semester, students will continue refining their Ojibwe language ability by studying verb conjugational systems, more complex mii-phrases, reduplication, more grammar pattern study, and more opportunities to use and apply their language skills.

OJIB 5250. Ojibwe Master Class. (3 cr. [max 6 cr.] ; A-F or Audit; Periodic Fall & Spring)
The course provide students opportunities to increase their Ojibwe speaking ability through consistent practice and performance of dialogues and stories while receiving native-speaker/instructor feedback. This is a performance based class, which will allow students to apply and practice what they have learned from other Ojibwe courses.

Ophthalmology (OPH)

OPH 5201. Orthoptics I. (4 cr. ; S-N or Audit; Every Summer)
Human anatomy, Ocular anatomy, history taking skills, basic optics, Diagnostic Testing I, Intro to Clinical Skills, Vision Screening and Assessment

OPH 5301. Orthoptics II. (5 cr. ; S-N or Audit; Every Fall)
Basic Ophthalmic skills, Strabismus, Retinoscopy, Surgical technique I, Pharmacology I, Clinical Skills II, Embryology

OPH 5501. Orthoptics IV. (4 cr. ; S-N only; Every Summer)
First semester Advanced Placement of Orthoptics Certificate program. prereq: Admission to Orthoptics Certificate program and completion of

OPH 5601. Orthoptics V. (5 cr. ; S-N only; Every Fall)
Second semester of Advanced Placement Year - Orthoptics training program. prereq: Enrollment in Orthoptics Certificate program

OPH 5701. Orthoptics III. (5 cr. ; S-N only; Every Spring)
Third semester of Orthoptics certificate program.

Oral Biology (OBIO)

OBIO 5001. Methods in Research and Writing. (; 2 cr. ; Student Option; Every Fall)
Skills necessary to begin a research project, including literature review, hypothesis formation, research design, and writing. Each student develops a research protocol.

OBIO 5010. Molecular Virology. (1 cr. ; A-F or Audit; Every Fall)
This course provides graduate students and upper-level undergraduate students with a knowledge base for understanding the molecular aspects of replication strategies utilized in virus replication. Topics for the course will focus on the molecular aspects of virus replication for the major virus families (e.g., arenaviruses, bacteriophages, flaviviruses, herpesviruses, orthomyxoviruses, picornaviruses, and retroviruses) as well as virus evolution, structure, and taxonomy.

OBIO 5020. Virus Pathogenesis and Host Interactions. (1 cr. ; A-F or Audit; Every Fall)
This course provides graduate students and upper-level undergraduate students with a knowledge base for understanding virus pathogenesis and host interactions. Topics for the course will focus on the molecular, cellular, and organismal aspects of virus pathogenesis and host interactions. The concepts of cellular pathogenesis, tissue tropism, portals of entry, local replication and virus spread, virus dissemination, and congenital infections will be covered. A particular emphasis will be placed on virus pathogenesis of the major virus families (e.g., arenaviruses, bacteriophages, flaviviruses, herpesviruses, orthomyxoviruses, picornaviruses, and retroviruses) and virus-host cell interactions that can restrict virus replication and are responsible for immunity will be discussed.

OBIO 5030. Virology Research Presentations. (1 cr. [max 10 cr.] ; S-N only; Every Fall & Spring)
This course is designed to enhance knowledge in virology through research presentations as well as the critical evaluation of presentations of other students and researchers. Presentation will includes current virology research, both individual research projects and critical reading, and presentation of current literature.

OBIO 5050. Evolution of Emerging Viruses. (2 cr. ; A-F or Audit; Every Spring)
This course is designed to provide graduate students and undergraduate students with junior or senior standing a knowledge base for understanding how HIV and other emerging viruses (e.g., Ebola, influenza, SARS, West Nile virus, hantavirus, hepatitis C) evolve and become public health threats. Topics for the course will focus on the biochemical, molecular, cellular, clinical, and epidemiological aspects of emerging viruses, with an emphasis on how each plays a role in virus evolution and emergence. This course will emphasize HIV as a key example of an emerging virus disease that has had a profound impact on human health.

Oral and Maxillofacial Surgery (OSUR)

OSUR 5257. Ambulatory General Anesthesia for the Oral and Maxillofacial Surgeon. (; 0-6 cr. ; S-N only; Every Fall, Spring & Summer)
Clinical rotation involving experience in outpatient management and using intravenous sedation and general anesthesia. prereq: Participation in oral and maxillofacial surgery training program.

OSUR 5276. Medicine Rotation for the Oral and Maxillofacial Surgeon. (; 0-6 cr. ; S-N only; Every Fall, Spring & Summer)
Clinical rotation at Fairview-University Medical Center under the direction of the Internal Medicine Department. Involves workup, admission, and daily management of patients on medical service, specifically cardiology and pulmonary. prereq: Participation in oral and maxillofacial surgery training program.

OSUR 5277. Physical Diagnosis for Oral Surgery Residents. (; 2 cr. [max 6 cr.] ; S-N only; Every Summer)
Six-week didactic course coupled with evaluation of patients. prereq: Participation in oral and maxillofacial surgery training program.

Org Leadership, Policy & Dev (OLPD)

OLPD 1231. Technological Change and Workplace Learning: Past and Present. (HIS; 3 cr. ; Student Option; Every Fall & Spring)
Within the historical context of the United States over the past 150 years, this course examines how we learn to be "good workers." The impact of multiple technological changes on workplace learning and broader American society is the main thematic focus of the course. In other words, how have various technologies continually re-made workers and disciplined them into being "good workers"?

OLPD 1303. Leadership in the Organizational Context. (3 cr. ; A-F only; Every Fall, Spring & Summer)
Life - like leadership - is full of paradoxes. We are all individuals. At the same time, we are all part of families, communities, institutions, structures, and systems. To understand and practice effective leadership, we must make sense of our lives - including our unique identities and experiences - within these broader organizational and societal contexts. We must think critically about how power flows through society, and how it shapes agency, opportunities and wellbeing for individuals and communities. And we must think creatively and critically about how leadership can help promote equity, justice, and human flourishing. In this course, we focus on organizations as a core context for leadership. Organizations are everywhere - some formal, some informal.

For example, we are all part of an educational organization: the University of Minnesota. We all interact with governmental organizations at national, state, and local levels. We may belong to community, religious, or cultural organizations. We might work - now or in the future - for a corporation, a nonprofit, or a cooperative. We may belong to an advocacy organization that works for social change. To study leadership within these various types of organizations, we must also turn inward to examine our own identities, social locations, and experiences. We draw on concepts and theories - from the fields of leadership development, organizational studies, sociology, and psychology - to analyze our lived experiences within broader contexts, and better understand the behaviors of individuals and groups within organizations. This course will require active engagement with course materials, your classmates, and class projects. Our class sessions will include group activities, student-driven discussions, and the occasional mini-lecture. We will explore case studies and individual narratives as touchstones for applying theory to real world contexts. Over the semester, you will complete both individual and group assignments, including reflective writing and class facilitation. Ultimately, this course is a "learning lab" where we have the chance to practice being how we would like the world to be. Old: Students examine own views of leadership, differences between

OLPD 1461. Presentations in Work Settings: Business & Marketing Education and Human Resource Development. (CIV; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
This course prepares students to present information and hone their messages based on audience need in a variety of business, leadership, and workplace contexts. Students interested in majoring in Business and Marketing Education (BME), Human Resource Development (HRD), and other majors can take this course in order to develop the disciplinary practices used in training and development, as well as business and industry to convey vital and timely messages.

OLPD 2811. Societies of the Future: Changing Work Contexts. (TS; 3 cr. ; A-F or Audit; Every Fall & Spring)
Ongoing evolution of social contexts and work through the interdisciplinary lens of future studies.

OLPD 2811H. Societies of the Future: Changing Work Contexts, Honors. (TS; 3 cr. ; A-F only; Every Fall & Spring)
Ongoing evolution of social contexts and work through the interdisciplinary lens of future studies. prereq: Honors student

OLPD 3202. Introduction to Strategies for Teaching Adults. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Theories of adult learning, learning/teaching styles, methods/perspectives of teaching, applications of teaching in various settings.

OLPD 3305. Learning About Leadership Through Film and Literature. (; 3 cr. ; Student Option; Every Fall)
Readings from leadership studies, literature, and film. Ethical dilemmas. Different styles of leadership and their consequences. Intersection of public/private in exercising leadership. Competing loyalties/pressures felt by leaders/followers. Fundamental questions about nature/desirability of leadership.

OLPD 3308. Data-Driven Decision-Making in BME and HRD. (3 cr. ; A-F only; Every Fall & Summer)
Living in the age of technology has implications for everyone in Business & Marketing Education (BME) and Human Resource Development (HRD). Technology that makes it possible to collect huge amounts of data has given more individuals and organizations the power and responsibility to analyze data and make decisions based on this data.
The amount of data being collected on our preferences, attitudes, and behaviors will only increase in the future, and this rich data can be used towards a variety of ends. In this course, we will use quantitative methods to uncover the information in large data sets and then consider how individuals and organizations are able to gain a competitive advantage by acting on this information. Topics covered in this course include: - Critical analysis of complex issues related to BME and HRD in organizations; - Major techniques of quantitative data analyses used in BME and HRD; - How to use of Excel and Excel Add-in Tools to conduct data analyses; - How to make effective decisions based on quantitative information in BME and HRD situations; and - Effective reporting of quantitative results to meet the expectations of stakeholders.

OLPD 3310. Special Topics for Undergraduates. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Inquiry into special topics related to organizational leadership, policy/development.

OLPD 3318. Introduction to Project Management. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Project management for business and industry. Project lifecycles, deliverables, and processes as they are commonly used in the workplace.

OLPD 3324W. Writing in the Workplace for Education and Human Development Majors. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Explore professional communication. Research/analysis writing. Memos, reports, proposals, human resource-related documentation, letters or announcements, presentations. prereq: 60+ undergraduate credits, declared major

OLPD 3331H. Honors: Leveraging and Understanding Global Identity through Intercultural Learning. (; 1 cr. ; A-F only; Periodic Fall, Spring & Summer)
Studying abroad can be a transformative experience that has the power to challenge your thinking and enlarge your perspective on the world. This course guides you through your studies abroad with intercultural readings, theory, writing, reflection, and feedback from peers and the instructor. A key element to this course is leveraging and connecting the intercultural and self-knowledge gained abroad to strengthened core career competencies. Using scenarios from your time abroad, you will work to understand and articulate career skill outcomes. As you discover your own global identity, you will be better prepared to translate and communicate the skills and strengths that employers and grad school admissions committees value in a globalized world. prereq: studying abroad the semester student is enrolled in course

OLPD 3332. Global Identity: Connecting Your International Experience to Your Future. (1 cr. ; Student Option; Every Fall, Spring & Summer)
Reflect on activities/readings of study abroad experiences overseas. E-journaling, written activities, group interaction using various formats. prereq: [3321 or EDPA 3102 or instr consent], studying abroad the semester student is enrolled in course

OLPD 3350. Special Topics in Professional Sales. (; 2 cr. [max 4 cr.] ; Student Option No Audit; Periodic Fall, Spring & Summer)
In this course, students will learn how to understand and incorporate advanced professional selling topics into practical experiences in professional sales. Students will improve their ability to communicate effectively and identify, define, and solve problems through role-play simulations that incorporates topics such as Understanding Objections, Understanding Sales Differentiators, Networking, CRM and Strategic Relationships, and Sales Management. In addition, students will gain understanding of the sales cycle and how to successfully navigate buyer interactions for business relationships. Students will also describe how internships and introspective assessments can foster greater career progression in professional sales.

OLPD 3381. Developing Intercultural Competence. (; 3 cr. ; A-F or Audit; Every Fall)
Past/current research on intercultural leadership. Students share their understanding/ experiences within intercultural framework.

OLPD 3401. Teaching Marketing Promotion. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Materials, methods, and approaches to teaching marketing promotion. Advertising, promotion, public relations, direct selling, visual merchandising, and direct marketing.

OLPD 3424. Sales Training. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Strategies and techniques for developing effective sales people. A review of review practices related to sales management, business development, selling strategies, and learning objectives essential to developing the skills, knowledge, and abilities to create a competent sales force.

OLPD 3493. Directed Study in Business & Marketing Education. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Open to qualified students. Opportunity to pursue study not available through regular coursework. In consultation with instructor, develop prospectus/complete progress reports/

final report on project. prereq: BME major, instr consent

OLPD 3601. Introduction to Human Resource Development. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Human resource development theories, principles, concepts, and practices.

OLPD 3609. Profession and Practice of Business and Marketing Education and Human Resource Development. (2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
This course is designed to provide Undergraduate Business and Marketing Education (BME) & Human Resource Development (HRD) students with the tools necessary to develop a career management plan to become successful business and marketing professionals and/or human resource development professionals. prereq: Admitted BME major or Admitted HRD major

OLPD 3621. Introduction to Training and Development. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Processes to carry out theoretically sound training/development practices, within the context of systemic relationship with host organization or system.

OLPD 3641. Introduction to Organization Development. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Organization development theories, principles, concepts, and practices. How development is used to direct change in an organization.

OLPD 3805. Introduction to Strategic Planning Through Human Resources. (; 3 cr. ; A-F or Audit; Periodic Spring)
Processes organizations use when engaged in strategic planning. How to participate in planning, implementing, and evaluating strategic initiatives to improve performance. prereq: 3601 or HRD 3001

OLPD 3828. Diversity in the Workplace. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Diversity, equity, and inclusion in the workplace. Issues of recruitment, selection, management, learning, leadership, and performance.

OLPD 4301. Global Youth Leadership and Community Engagement. (; 6 cr. ; A-F only; Periodic Fall, Spring & Summer)
Six-credit course over three semesters. Students take courses at the U of M (spring and fall) and at FLASCO University in Buenos Aires, Argentina, (four weeks in August). Theory and practice of youth-engagement/ empowerment to address issues that affect their lives, their communities, and the broader global society.

OLPD 4318. Advanced Project Management. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Project management for business and industry. Advanced aspects and techniques in project management, project lifecycles, deliverables, and processes as they are commonly used in the workplace. prereq: 3318 or EDPA 3218

OLPD 4401. E-Marketing. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Basic understanding and personal experience with how e-marketing can be used as part of an overall marketing and promotion plan.

OLPD 4421. Practicum in Nonprofit Organizations. (; 2 cr. [max 4 cr.] ; A-F or Audit; Every Fall & Spring)
This course will provide students the opportunity to develop and implement critical aspects of a nonprofit organization from board selection, training, fundraising, event marketing and management, and conducting outreach programs. Students will have the opportunity to develop a variety of job functions including: sales, marketing, e-marketing, operations, management, accounting, administration, purchasing, procurement, fundraising, pre-event planning, and post-event evaluation.

OLPD 4426. Strategic Customer Relationship Management. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Principles of customer relationship management, brand identity, and integrated marketing communications. Comprehensive framework for how organizations interact with their various publics to create goodwill/loyalty.

OLPD 4496. Applied Experience in Business & Marketing Education. (1-4 cr. ; S-N only; Every Fall, Spring & Summer)
Application of theory to practice related to BME core coursework with integrative paper. Work, internship, study abroad, research, field experience, service learning, etc. can all fulfill this degree requirement. Contact OLPD Program Advisors for more information. prereq: BME major, ugrd, [3496 or concurrent registration is required (or allowed) in 3496]

OLPD 4696. Applied Experience in Business Marketing Education & Human Resource Development. (1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
OLPD 4696, the Applied Experience course, is designed as a culminating learning experience for students nearing graduation. It affords students an opportunity to seek out practical work experience related to their area of concentration in business and marketing or human resource development. An essential part of an Applied Experience is the opportunity to use the knowledge acquired in the classroom in practical applications in the workplace. Problem-solving and creative thinking in the workplace supports the retention and mastery of information gained in the classroom. To be successful, the Applied Experience in BME/HRD should focus on a specific project(s) or task(s) that lend to analysis and resolution over the course of 6 to 14 weeks. A typical Applied Experience in BME/HRD involves 160 hours of work for 4 credits including all the course work listed on this syllabus (20 hr) during a single semester (45 hours per credit). The Applied Experience in BME/HRD is not credit for work. Students must be engaged in specific activities/duties related to their area of concentration related to the field of business and marketing or human resource development. Each activity is expected to relate to a BME/HRD theory, a career competency area, or professional skill. The student and the employment supervisor will be asked to sign a contract stipulating to the internship objective and activities; the contract must also be approved by the instructor. prereq: OLPD ugrd student in BME/ HRD, BME compl 3 of the 4 cores: OLPD 3318, 3401, 3424, 4426. HRD compl 4 of the 4 cores: OLPD 3601, 3202, 3621, 3641. Completed or permission to be concurrently registered for OLPD 3609.

OLPD 4870. Introduction to Integrating Human Rights into Organizational Leadership. (; 3 cr. ; A-F or Audit; Every Spring)
Forum to explore local and international policies/practices for integrating human rights into organizational leadership and management.

OLPD 5001. Formal Organizations in Education. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Classical/current theories of organizations. Applications to education and related fields.

OLPD 5002. Private Colleges as Formal Organizations. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Provide certificate students with introduction to contemporary thinking on organizations/ administration. Primary focus on organizational theory. prereq: Bachelors degree must be completed before starting this course.

OLPD 5003. Borderland, Education Policy, Immigrant Expereince. (3 cr. ; Student Option; Every Spring)
Borderland, Education Policy and Immigrant Student Experience brings to focus the history of individual, institutional (educational) and cultural forms of marginalization and discrimination of immigrant communities from US history. This class includes a Spring Break trip to Tucson and the Sonora Desert led by the non-profit Borderlinks (www.borderlinks.org). Service learning opportunities may include water drops in the desert, interpreting for newly arrived migrants and serving as a supportive witness for migrants at deportation court. Both in Minnesota and Tucson, participants will dialogue with local stakeholders, advocates and agents of change including migrants, activists, border patrol, ranchers, faith communities, lawyers and lawmakers. Students will also have the opportunity to compare and contrast US immigrant issues with those across the globe.

OLPD 5005. School and Society. (2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Readings in history, philosophy, social sciences, and law revealing diverse educational values in a pluralistic society. Multiple expectations of schools. Civil liberties, rights, community. Varying cultural backgrounds of students, family circumstances, exceptional needs. prereq: Jr or sr or MEd/ initial licensure student or CLA music ed major or preteaching major or instr consent

OLPD 5009. Human Relations: Applied Skills for School and Society. (1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Issues of prejudice/discrimination in terms of history, power, social perception. Knowledge/

skills acquisition in cooperative learning, multicultural education, group dynamics, social influence, leadership, judgment/ decision making, prejudice reduction, conflict resolution, teaching in diverse educational settings. prereq: MEd/init lic or CLA music ed or preteaching or instr consent

OLPD 5011. Leading Organizational Change: Theory and Practice. (; 3 cr. ; Student Option; Every Fall)
How theory is incorporated, affects the change process, and can improve schools/institutions of higher education. Characteristics that impact change processes/outcomes. Leadership/policy effects.

OLPD 5033. Foundations of Individual/ Organizational Career Development. (; 3 cr. ; Student Option; Every Spring)
Introduction to individual and organizational career development theory and practice. Examines critical issues in work patterns, work values, and workplaces in a changing global society, with implications for career planning, development, and transitions, emphasizing personal and organizational change. For nonmajors: serves students in adult ed, HRD, IR, college student advising, and other related fields.

OLPD 5041. Sociology of Education. (; 3 cr. ; Student Option; Every Spring)
Structures and processes within educational institutions; linkages between educational organizations and their social contexts, particularly related to educational change.

OLPD 5044. Introduction to the Economics of Education. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Costs and economic benefits of education, with a focus on K-12; educational markets, prices, and production relationships; investment and cost-benefit analysis.

OLPD 5048. Cross-Cultural Perspectives on Leadership. (; 3 cr. ; Student Option; Every Fall & Summer)
Introduction to cultural variables of leadership that influence functioning of cross-cultural groups. Lectures, case studies, discussion, problem-solving, simulations. Intensive workshop.

OLPD 5056. Case Studies for Policy Research. (; 3 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
This course introduces students to knowledge and skills appropriate for the conduct of rigorous case study research in educational, organizational, and other social settings. Underlying purposes and assumptions of case study methods will be examined as well as a variety of methodological approaches. The course focuses on the use of qualitative and mixed-methods approaches as these are the predominant strategies employed in contemporary case study research. Accordingly, it emphasizes links between research purposes, the conceptualization of case study projects, and the development of researchable questions. It also takes up a variety of ethical and political issues related to working with participants during the research process, as well as contemporary trustworthiness criteria for case study reports. The bulk of the course is given to training in observation, generating field notes, interviewing, collecting material cultural artifacts, using surveys, and analyzing, interpreting, and writing up case study data. The first segment of the course focuses on a critical discussion of research paradigms and epistemological assumptions of a variety of case study approaches. Students choose and critique a published case study from their field of interest. The second part of the course is devoted to a very small scale case study project which students design and carry out themselves. This project is supported by relevant readings and in-class activities (including peer review) related to the actual conduct of case study research.

OLPD 5057. Research in International Education. (; 3 cr. ; Student Option; Every Summer)
Key skills/proficiencies for rigorous graduate research. Quantitative/qualitative/mixed methods. How to be a critical consumer of policy-related, comparative/intercultural research. Conducting cross-cultural/ comparative research. Related ethical issues.

OLPD 5061. Ethnographic Research Methods. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
This course introduces students to knowledge and skills appropriate for the conduct of ethnographic research. Underlying purposes, assumptions, and distinctive characteristics of ethnographic methods will be examined as well as appropriate exemplars. Accordingly, the course emphasizes links between research purposes, the conceptualization of ethnographic projects and the development of researchable questions. The course also takes up a variety of ethical and political issues related to working with participants during the research process, as well as contemporary trustworthiness criteria for ethnographic written accounts. The bulk of the course is given to training in observation, generating field notes, developing interview questions, interviewing, collecting material cultural artifacts, using surveys, and analyzing, interpreting, and writing up ethnographic data. The first part of the course focuses on a critical discussion of ethnographic research purposes, epistemological assumptions, and essential features. Students choose and explore a published ethnographic study from their field of interest. The second part of the course is devoted to a very small scale ethnographic project which students design and carry out themselves. This project is supported by relevant readings and in-class activities (including peer review) related to the actual conduct of ethnographic research.

OLPD 5080. Special Topics: Organizational Leadership, Policy, & Development. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Topical issues in organizational leadership, policy, development.

OLPD 5087. MA Research Seminar. (3 cr. ; S-N only; Every Fall, Spring & Summer)
OLPD 5087, MA Research Seminar, is intended to support OLPD Masters students working on their plan A or plan B papers. The course will focus on conducting effective research and developing the writing skills and habits needed to support the development and completion of the paper, including setting individual and realistic goals to further the project. Class time will include review and discussion of research strategies and practice, expectations for graduate level writing, in-class research and writing time, reviewing and commenting on work in progress in small groups, and review of proper APA style documentation and practices.

OLPD 5095. Problems: Organizational Leadership, Policy, and Development. (1-3 cr. [max 24 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Course or independent study on specific topic within department program emphasis.

OLPD 5096. Internship: Organizational Leadership, Policy, and Development. (; 1-9 cr. [max 24 cr.] ; Student Option; Every Fall & Spring)
Internship in elementary, secondary, general, postsecondary administration, or other approved field related setting.

OLPD 5103. Comparative Education. (; 3 cr. ; Student Option; Every Fall)
Examination of systems and philosophies of education globally with emphasis upon African, Asian, European, and North American nations. Foundations of comparative study with selected case studies.

OLPD 5104. Strategies for International Development of Education Systems. (; 3 cr. ; A-F or Audit; Periodic Fall)
Strategies for improving quality/efficiency of schooling in developing countries. Introduction to current research on what policy/ programmatic interventions have proven most successful in increasing access, raising quality, and improving efficiency of education in developing countries. prereq: Grad student

OLPD 5107. Gender, Education, and International Development. (3 cr. ; A-F or Audit; Every Fall)
Role of gender/gender relations in international development/education. Interdisciplinary body of literature from development studies, political science, economics, anthropology, cultural studies, gender/women's studies.

OLPD 5121. Educational Reform in International Context. (; 3 cr. ; Student Option; Every Spring)
Critical policy analysis of educational innovation and reform in selected countries. Use theoretical perspectives and a variety of policy analysis approaches to examine actual educational reforms and their implementation.

OLPD 5124. Critical Issues in International Education and Educational Exchange. (; 3 cr. ; Student Option; Every Spring)
Analysis of comprehensive policy-oriented frameworks for international education; practices of U.S. and other universities;

conceptual development of international education and its practical application to programs, to employment choices, and to pedagogy.

OLPD 5128. Anthropology of Education. (; 3 cr. ; Student Option; Periodic Spring)
Insights from educational anthropology for educators to address issues of culture, ethnicity, and power in schools.

OLPD 5132. Intercultural Education and Training: Theory and Application. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Introduction to the field of intercultural education and related field of multicultural education; analyzes the field through a critical lens; examines diverse meanings of education, including cultural knowledge.

OLPD 5201. Strategies for Teaching Adults. (; 3 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Psychological theories of adult learning; learning styles and personality types; teaching styles; group and team learning; moderating and study circles; teaching technologies and distance learning; gender, race, and cultural communication. Applications of strategies. prereq: Grad student only

OLPD 5202. Perspectives of Adult Learning and Development. (; 3 cr. ; Student Option; Periodic Fall & Summer)
Emphasis on major adult development theorists, theories, and current applications. Transformative learning, self-directed learning, experiential learning, and cooperative learning provide theoretical framework for exploring physiological, psychological, sociological, and cultural aspects of adult development through the life span.

OLPD 5204. Designing the Adult Education Program. (; 3 cr. ; A-F or Audit; Periodic Spring)
Designing and implementing educational programs for adults. Application of concepts, theories, and models in different adult learning situations.

OLPD 5211. Introduction to the Undereducated Adult. (; 1 cr. ; A-F or Audit; Every Summer)
Definitions of literacy in workplace, community, and family. Issues: poverty/welfare, ethnicity, cultural diversity, social class, language/ learning, immigrants.

OLPD 5212. Introduction to Adult Literacy in the Workplace. (; 1 cr. ; A-F or Audit; Every Summer)
Review workplace literacy programs, funding, program planning, and needs assessment. Reaching/recruiting workers. Role of employers and the unions. Writing for low literacy employees. prereq: 5211 or ADED 5211

OLPD 5213. Introduction to Adult Literacy in the Community. (; 1 cr. ; A-F or Audit; Every Summer)
Community programs in United States. Literacy building. Family literacy skills. Correctional education in reintegrating offenders back into community. Integrating people with disabilities through community literacy programs. Literacy/development in developing countries. Reaching/recruiting indigenous, migrant, immigrant groups. Social action approaches to literacy education. prereq: 5211 or ADED 5211

OLPD 5224. Formal Assessment of Adult Literacy. (; 1 cr. ; A-F or Audit; Periodic Fall)
Assessment of adult English/literacy skills for work, family, community, and continuing education. Formal testing policy, techniques, standardized tests. Assumptions about testing, cultural bias, and interpretation of formal tests. Test preparation programs. prereq: 5211 or ADED 5211

OLPD 5225. Informal Assessment of Adult Literacy. (; 1 cr. ; A-F or Audit; Periodic Fall)
Informal assessment of adult English/literacy skills for work, family, community, and further education. Informal testing techniques, setting educational goals, formal versus informal assessment. prereq: 5211 or ADED 5211

OLPD 5226. Advanced Assessment of Adult Literacy. (; 1 cr. ; A-F or Audit; Periodic Fall)
Applications/case studies. Educational planning for work, family, community. prereq: 5211 or ADED 5211

OLPD 5233. Methods of Teaching Beginning Adult Literacy. (; 1 cr. ; A-F or Audit; Periodic Fall)
Learning English/literacy as an adult. Initial approaches to teaching reading, writing, and communications skills. Theories of learning/ curriculum design. Technology as teaching tool. Teaching students with disabilities or with cultural/gender differences. prereq: 5211 or ADED 5211

OLPD 5234. Methods of Teaching Intermediate Adult Literacy. (; 1 cr. ; A-F or Audit; Periodic Fall)
Learning English/literacy as an adult. Approaches to teaching reading, writing, and communications skills. Communication/ comprehension in oral/written English. English reading/oral communication skills for workplace. Evaluating commercial materials/ software. prereq: [5211 or ADED 5211], [5233 or ADED 5233]

OLPD 5235. Methods of Teaching Advanced Adult Literacy. (; 1 cr. ; A-F or Audit; Periodic Fall)
Approaches to teaching reading, writing, study, communication skills. Preparing students for college/continuing education. English in workplace/on Internet. Problem solving, analytical thinking. Technology as teaching tool. Evaluating commercial material/software. prereq: 5211 or ADED 5211

OLPD 5296. Field Experience in Adult Education. (1-6 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Supervised fieldwork and practice. Presentations and evaluations of adult education practices.

OLPD 5309. Culturally Responsive School Leadership. (3 cr. ; A-F only; Periodic Fall, Spring & Summer)
This course will cover the histories, contexts, and major strands of culturally responsive school leadership. Module 1 begins with an overview of some of the primary sources of oppression in the West and the Global South. Here, we cover material on varying epistemologies, the nature of bias, critical self-reflection, and schools, space, and identity. In Module 2, we will examine how these oppressive practices and systems exist in the modern era. We look then at how they enter institutions and how they are reproduced. This includes an examination of various types of bigotry and discrimination in school. In Module 3, we begin to look at how these histories and complex, dynamic systems of power, privilege, and oppression enter and express in schools and communities. We move from the individual to the collective as we explore the many divides between school and community people and perspectives. In Modules 4 and 5, we finally look at emancipatory, liberatory, and culturally responsive models of schooling. In this last part of the course, we look at how community-based and indigenous knowledge can be used to inform schooling. Here, we dig deep into culturally responsive leadership practice, spending time unpacking 4 major strands of culturally responsive school leadership. We look at how curriculum, instructional leadership, PDs, and other resources are structured to improve equity in a building. We take up the community-based approaches to education.

OLPD 5321. The Principal as Leader of High-Performing Schools. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Role of principal: qualifications, duties, problems.

OLPD 5322. Leaders in the Superintendency and Central Office. (; 3 cr. ; Student Option; Every Fall & Summer)
Role/responsibility of superintendent in school district. Real life experiences, leadership potential as CEO. Purposes, power, politics, practices of position. Interplay of internal school forces, community forces. Leadership in public, high-profile appointment.

OLPD 5323. Women in Leadership. (; 3 cr. ; Student Option; Every Fall)
Women in leadership, in context of larger systems and their own lives. Supporting equity/ equality across areas of difference. prereq: Technology access

OLPD 5324. Strategic Financial Planning and Policy for Educational Leaders. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
State-local school finance systems, budgeting, governmental fund accounting. Interpretation of financial information. Addresses competencies required under MN AR 3512 for administrative licensure Grad students working on K-12 Administrative Licensure, MA, MED or PHD prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5332. Personal Leadership and the Private College. (3 cr. ; A-F or Audit; Every Fall, Spring & Summer)

Recognize/develop leadership skills and competencies necessary for team work, consensus building, group leadership within private colleges. Blend practice/ theoretical perspectives to develop leadership competencies of students. prereq: Must have Bachelors degree awarded prior to taking this course.

OLPD 5344. School Law. (; 3 cr. ; Student Option; Every Spring & Summer)
Legal foundations of elementary/secondary education. Statutory themes, relevant case law, emergent policy issues. Implications for educational organizations and for administrative practice. Addresses competencies required under MN AR 3512 for administrative licensure. Grad students working on K-12 Administrative Licensure, MA, MED or PHD prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5346. Politics of Education. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Political dimensions of policy formulation/ implementation in education. Use of power/ influence in shaping educational policies and in resolving conflicts over educational issues. Analysis of consequences/cross-impacts. prereq: postbac, MEd, or grad student

OLPD 5348. Leaders of Human Resources Administration. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Skills for administrator/leader. Human resources administration, employee recruitment, selection, orientation/support, supervision, performance appraisal of school district personnel. Addresses competencies required under MN AR 3512 for administrative licensure. prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5356. Disability Policy and Services. (; 3 cr. ; Student Option; Every Spring & Summer)
Policy, research, and current practices related to education, health, and social services that support children, youth, and adults with special needs, and that support their families. Federal, state, and local perspectives.

OLPD 5361. Project in Teacher Leadership. (; 3 cr. ; Student Option No Audit; Periodic Fall, Spring & Summer)
Create, implement, evaluate, and present a leadership project designed to initiate positive change in educational environments. Review of related literature, proposal development, project development, implementation and evaluation, critical reflection, sharing learning outcomes. . If Administrative Licensure candidate see advisor. prereqs: Grad students working on K-12 Administrative Licensure and/or Master in Education (Leadership in Education)

OLPD 5364. Context and Practice of Educational Leadership. (; 3 cr. ; A-F or Audit; Every Fall & Summer)
Current research/practice on educational leadership. Focuses on creating school cultures conducive to continuous improvement/ change. Strategies for personal/organizational leadership in PK-12 settings.

OLPD 5368. Leadership for Special Education Services. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Legislative, procedural, executive, and judicial actions that affect services, families, and children with special needs at federal, state, and local levels. Overview of cultural competence, conflict management, due process, supplemental programs. Addresses competencies required under MN AR 3512 for administrative licensure Grad students working on K-12 Administrative Licensure and/or Master in Education (Leadership in Education) prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5374. Leadership for Professional Development. (; 4 cr. ; Student Option; Every Fall)
Designing, implementing, evaluating staff development in preK-12 settings. Research-based standards for effective staff development. Need for embedded time for collaborative learning, evaluating staff/student outcomes. prereq: Postbaccaleaureate, at least 3 yrs teaching experience

OLPD 5375. Special Education Finance: Program Models, Policy, and Law. (; 2 cr. ; Student Option; Every Summer)
How special education revenue is a resource to accomplish student-related objectives. Revenue sources, compliance, budget monitoring. Key policy, case law, program models from perspective of director of special education. prereq: Grad students working on K-12 Administrative Licensure and/or Master in Education (Leadership in Education)

OLPD 5376. Leading School Tax Elections. (; 1 cr. ; S-N or Audit; Periodic Fall, Spring & Summer)
Comprehensive planning model for conducting school tax elections. Emphasizes systems, strategies, and campaign tactics.

OLPD 5377. Leadership in Community Education Finance and Law. (; 1 cr. ; Student Option; Periodic Fall, Spring & Summer)
Statute 124D and its relationship to each of the categories of community education: early childhood, family education, adult basic education, and ALC funding. Revenues and expenditures, UFARS, and how to access information. Organize financial and legal data for presentation. The course will be approached from the frame of resource development. Prereqs: OLPD 5385, OLPD 5386

OLPD 5384. Special Education Law for Leaders. (; 1 cr. ; Student Option; Every Fall & Summer)
Competencies of leadership, policy, and political influence. Legal/regulatory applications focusing on special education law. Addresses competencies required under MN AR 3512 for administrative licensure prereq: Grad students working on K-12 Administrative Licensure and/or Master in Education (Leadership in Education)

OLPD 5385. Licensure Seminar: Program Policies and Inclusionary Leadership. (; 1 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Prepararation for licensure program. Program overview, preassessment, reflective practice, APA writing, exit panel review, administrative employment interview.

OLPD 5386. Leadership Portfolio Seminar. (; 1 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Development of electronic administrative licensure portfolio to earn endorsement for license as school superintendent, K-12 principal, director of special education, or director of community education. prereq: 5385 or concurrent registration is required (or allowed) in 5385 or EDPA 5385

OLPD 5387. Leadership for Teaching and Learning. (3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Multiple aspects of administrating teaching/ learning. Administration of teaching/learning as system in inclusive schools. Questions administrator must ask as leader of learning for students/adults. Addresses competencies required under MN AR 3512 for administrative licensure. prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5388. Leadership for Master(ful) Scheduling. (2 cr. ; Student Option; Every Fall & Summer)
Work of high-performing professional learning communities. Implications for moving from building master schedule to leadership for master(ful) scheduling of time, space, motion, people. Hands-on work with infinite campus software/scheduling-building logic.

OLPD 5389. Community Education Leadership. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Competencies of leadership, community relations, communication, community assessment, program development, program evaluation. Philosophy/administration of community/alternative education programs. Addresses competencies required under MN AR 3512 for administrative licensure. prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5396. Field Experience in PK-12 Administration: Authentic Practice in Leadership. (; 3 cr. [max 12 cr.] ; S-N or Audit; Every Fall & Spring)
Field experience or internship arranged for students seeking licensure as PK-12 principal/ superintendent. Content/credit depend on

licensure requirements specified in individual field experience agreement prereqs: OLPD 5385 Licensure Seminar: Program Policies and Inclusionary Leadership or concurrent registration and OLPD 5386 Leadership Portfolio or concurrent registration.

OLPD 5476. Field Based Projects in Business and Industry. (; 1-4 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Curricular, instructional, developmental, or evaluative problems and projects applicable to local school or business and industry situations.

OLPD 5501. Principles and Methods of Evaluation. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to program evaluation. Planning an evaluation study, collecting and analyzing information, reporting results; evaluation strategies; overview of the field of program evaluation.

OLPD 5502. Theory and Models of Evaluation. (3 cr. ; Student Option; Every Fall & Summer)
Evaluation theories/models currently available to practitioners. Communication with clients about value/utility of program. Systems theory. prereq: [5501/EPsy 5243] or PA 5311 or PubH 6034 or another introductory evaluation course approved by instructor.

OLPD 5521. Cost and Economic Analysis in Educational Evaluation. (; 3 cr. ; Student Option; Every Fall)
Use and application of cost-effectiveness, cost-benefit, cost-utility, and cost-feasibility in evaluation of educational problems and programs.

OLPD 5524. Evaluation Colloquium. (; 1 cr. [max 24 cr.] ; S-N or Audit; Every Fall & Spring)
Informal seminar of faculty/students. Issues/ problems of program evaluation. prereq: [5501 or EDPA], [5501 or EPSY 5243]

OLPD 5528. Focus Group Interviewing Research Methods. (; 1-3 cr. ; Student Option No Audit; Every Fall)
Students get an overview of the critical features of designing and conducting focus group interviews. Students practice moderating skills and then develop questions for a focus group project.

OLPD 5601. Foundations of Human Resource Development. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to human resource development as a field of study and practice.

OLPD 5604. Systems Foundation of Human Resource Development. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to system theory as a core discipline supporting the theory and practice of human resource development. prereq: 5601

OLPD 5605. Strategic Planning through Human Resources. (; 3 cr. ; A-F or Audit; Periodic Spring)
Strategic nature of organizations. How HRD can align its goals with those of organization. Strategic planning, systems thinking. Ways HRD managers can become strategic players in organization. prereq: 5607 or 5615 or HRD 5201 or HRD 5301

OLPD 5607. Organization Development. (; 3 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Introduction to major concepts, skills, and techniques for organization development/ change. prereq: Grad student only

OLPD 5611. Facilitation and Meeting Skills. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to the disciplines of planning and running effective meetings. Tools and methods for meeting management and evaluation are presented within the context of organization development.

OLPD 5612. International Human Resource Development. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Problems, practices, programs, theories, and methodologies in human resource development as practiced internationally. prereq: Grad students only; ugrd seniors with instr consent

OLPD 5613. Survey of Research Methods and Emerging Research in Human Resource Development. (; 3 cr. ; A-F or Audit; Periodic Spring)
Role of research in HRD. Standards/criteria for evaluating research, critique of conference research papers, identification of emerging research themes. Offered in conjunction with the annual conference of Academy of HRD. prereq: [Registered, in attendance] at conference of Academy of HRD

OLPD 5615. Training and Development of Human Resources. (; 3 cr. ; A-F or Audit; Periodic Spring & Summer)
Training/development of human resources in organizations. Process phases of analysis, design, development, implementation, and evaluation. prereq: Grad student only

OLPD 5616. Training on the Internet. (; 3 cr. ; Student Option; Every Spring & Summer)
Major concepts, skills, and techniques for giving and receiving training on the Internet. prereq: Grad student only

OLPD 5619. Planning and Decision-Making Skills. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Introduction to the disciplines of planning and decision making typically used in process improvement interventions. Tools and methods for facilitating group decisions and problem solving.

OLPD 5696. Internship: Human Resource Development. (; 1-10 cr. ; S-N or Audit; Periodic Fall & Spring)
Students apply/contract for human resource development positions. prereq: [[3901 or HRD 3601, [3696 or HRD 3196], [3620 or 3640 or HRD 3201 or HRD 3301], [3202 or ADED 3101], undergrad] or [[5607 or 5615 or HRD 5201 or HRD 5301], [5801 or WHRE 5001], grad student]], instr consent

OLPD 5701. U.S. Higher Education. (; 3 cr. ; Student Option; Every Fall & Summer)
U.S. higher/postsecondary education in historical/contemporary perspective. Emphasizes structure, history, and purposes of system as a whole.

OLPD 5702. Higher Education in Global Contexts. (3 cr. ; A-F only; Periodic Fall, Spring & Summer)
This course is an introductory overview of higher education in the international context and the processes of internationalization in which higher education institutions engage. It addresses contemporary issues facing regions, countries, and higher education institutions across the world and focuses on how higher education institutions approach their global work. The outcomes sought for students in this course include the following: Understanding of broad historical events, including the political, cultural, religious, psychological, and economic factors that shaped higher education in regions and countries across the world; Knowledge about the role of the federal government in shaping the structure of the higher education system in specific countries; Understanding of the process of internationalization as it relates to institutions across the world; Identification of the motivating factors that influence international activity related to higher education institutions; Identification of the cultural and sociopolitical factors that drive internationalization in higher education institutions. No single course can address all of the topics related to international higher education. In this course, the following seven primary questions serve as the focus for an analysis of international higher education: 1) What are the most significant historical factors that shaped higher education in a specific country, and to what extent do those country-specific historical factors help understand higher education in the region? 2) What is the role of the federal government in a country, and to what extent are within-country differences analogous to differences among states in the United States? 3) How is higher education financed within a country, and are there regional economic forces that affect countries in the region? 4) What is the structure of higher education in the country (e.g., public institutions, private non-profit institutions, and for-profit institutions)? 5) What sociocultural, political, and institutional aspects of institutions? global initiatives.

OLPD 5704. College Students Today. (; 3 cr. ; Student Option; Every Spring & Summer)
Issues involving population of students in colleges/universities. College student development theory, students' expectations/ interests. How college affects student outcomes. Role of curricular/extracurricular activities. Student-faculty interaction.

OLPD 5709. Critical Issues in Higher Education. (; 3 cr. ; A-F or Audit; Every Spring)
Issues/opportunities facing American higher education. Financial, demographic, athletics, for-profit, changing public opinion. Framework for analysis.

OLPD 5712. Multicultural Theories of College Student Development Applied to

Teaching and Learning. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Multicultural student development theories/ theorists. Implications for teaching/learning. Students reflect on The Student Personnel Point of View and Learning Reconsidered: Campus-wide Focus on the Student Experience and other collaborative efforts.

OLPD 5721. Race and Ethnicity in Higher Education. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Review of research. Theoretical frameworks, methodological perspectives, and research strategies used to study students, staff, and faculty. Historical perspectives.

OLPD 5724. Leadership and Administration of Student Affairs. (; 2-3 cr. ; Student Option; Periodic Fall & Spring)
Scope, administration, coordination, and evaluation of programs in college and university student affairs.

OLPD 5732. The Law and Postsecondary Institutions. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Analysis of court opinions and federal regulations affecting postsecondary educational institutions.

OLPD 5734. Institutional Research in Postsecondary Education. (; 2-3 cr. ; A-F or Audit; Periodic Fall)
Scope, role, administration, research strategies, and evaluation of institutional research in postsecondary institutions. Methodologies, disciplinary foundations of research. Use of institutional, state, and national databases in addressing institutional missions/functions. prereq: [5701, [EPSY 5231 or EPSY 8261], grad student] or instr consent

OLPD 5736. Public Engagement and Higher Education. (; 3 cr. ; A-F only; Every Fall)
Study/practice of public engagement in higher education. Civic roles of post-secondary education institutions.

OLPD 5796. Supervised Practicum in Multicultural Postsecondary Teaching and Learning. (; 3 cr. ; S-N only; Every Fall, Spring & Summer)
Postsecondary teaching experience in supervised settings. Weekly group supervision session. Classroom experiences, learning centers, and other postsecondary teaching venues. prereq: Grad student in PsTL certificate program or admitted to PsTL master's program

OLPD 5801. Survey: Human Resource Development and Adult Education. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Overview of fields of human resource development and adult education. Societal context, theories, processes, definitions, philosophies, goals, sponsoring agencies, professional roles, participants, and resources. Unique characteristics and ways fields overlap and enhance one another. prereq: Grad student only

OLPD 5806. Philosophy and Practice of Career and Technical Education. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Purposes/goals of contemporary career/ technical education. Governance structure, historical perspectives, industry-education relationship, current education practices. Possible future trends and their implications. Development of a personal philosophy of career/technical education.

OLPD 5811. Education for Work. (; 3 cr. ; Student Option; Periodic Spring)
Examination of contextual bases underlying education for work; implications for practice.

OLPD 5812. Consulting Skills for Organization Change. (3 cr. ; Student Option No Audit; Every Fall & Spring)
This course is an introduction to major theories, concepts, skills, and techniques of consulting for industry, education, and government.

OLPD 5813. Enhancing Work-based Learning Through Collaboration. (; 2 cr. ; Student Option; Every Summer)
Interagency planning issues/practices relating to special populations for educational, business, and human service organization personnel, family members, and advocates.

OLPD 5816. Distance Learning in Adult Education and Training. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Distance learning concepts, theory, history, present practice, delivery systems, course design, major issues, future directions.

OLPD 5819. Evaluating and Using Research in Organizations and Education. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Role of educational research in professional practice. Problems of practice for research. Alternative modes of research. Synthesis/ application of results of research. prereq: Grad student

OLPD 5823. Work-Based Learning Policies. (; 2 cr. ; Student Option; Periodic Fall & Summer)
Aims/purposes of federal, state, and local policies, related to work-based learning.

OLPD 5829. Course Development for Business and Industry. (; 2 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Designing instructional programs/courses that help learners develop desired competence. Designing instruction for performance based training and vocational/technical education. Developing course syllabus components that clarify course expectations. Developing academic/community-based elements that complement course goals. Reflect on and compare performance-based instruction with other curriculum models for the field.

OLPD 5845. The Entrepreneurial Private College. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Financial management/entrepreneurial strategies for private college. Enrollment management, revenue generating strategies, branding/marketing, fundraising, developing/ sustaining entrepreneurial institutions. Design strategies for private colleges. prereq: Must have completed Bachelors degree before taking this course.

OLPD 5861. Instructional Methods for Business and Industry. (; 2 cr. ; Student Option; Every Spring)
Theory/practice in instructional methods for career/technical education (CTE) instructors and human resources/development (HRD) professionals. How to select various teaching methods and plan for their delivery. Preparing an instructional methods plan to clarify course content, teaching methods selected, rationale for their selection, and how a student organization might facilitate student learning.

OLPD 5893. Directed Study in OLPD. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Self-directed study, with faculty advice, in areas not covered by regular courses.

OLPD 5902. Leading Change in Private Colleges. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Theories of organizational change process/ application for leading private colleges with unique cultures/distinctive missions. Factors impacting change process/implications for leading private colleges. prereq: Must have Bachelors degree awarded prior to taking this course.

Otolaryngology (OTOL)

OTOL 5101. Introduction to the Basic Sciences in Otolaryngology I: Ear. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Multidisciplinary introduction to the basic sciences of the ear. Acoustics and psychoacoustics, temporal bone anatomy, external and middle ear mechanisms, cochlear physiology, auditory neurophysiology, ear embryology, ear biochemistry, immunology, fine structures, vestibular mechanisms and measurement. S-N grading option for nonmajors only. prereq: Otolaryngology major or instr consent

OTOL 5102. Introduction to the Basic Sciences in Otolaryngology II: Head and Neck. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Multidisciplinary introduction to the basic sciences of the head and neck. Laryngeal anatomy and physiology, nasal anatomy and physiology, immune biology, embryology of head and neck. S-N grading option for nonmajors only. prereq: Otol major or instr consent

OTOL 5993. Directed Studies. (; 1-12 cr. [max 24 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed readings and preparation of reports on selected topics. prereq: instr consent

Periodontics (PERO)

PERO 5123. Practice Management Externship. (; 1 cr. ; Student Option; Every Spring)
Familiarizes periodontal students with the private practice environment and prepares them to select the type of practice they want

to purchase or build and successfully manage their office. prereq: Resident in advanced education program in periodontology

Pharmaceutics (PHM)

PHM 5200. New-Drug Development Process. (; 1 cr. ; Student Option; Periodic Fall & Spring)
New-drug development process in the U.S. pharmaceutical industry.

Pharmacology (PHCL)

PHCL 2001. Basic Principles of Pharmacology: A Drug's Fantastic Voyage. (2 cr. ; A-F only; Every Fall)
Basic principles of pharmacology affecting drug from administration through action/elimination. prereq: First-year chemistry

PHCL 3100. Pharmacology for Pre-Med and Life Science Students. (; 2 cr. ; A-F or Audit; Every Spring)
Principles/mechanisms of drug action. Major drug categories for different organ systems. prereq: College-level biology, biochemistry or physiology recommended

PHCL 4001. Mechanisms of Drug Action. (2 cr. ; A-F or Audit; Every Fall & Spring)
How drugs function as applied to the treatment of a single medical condition. Pharmacology, pharmacokinetics, pharmacodynamics, pharmacogenetics, pharmacogenomics. prereq: Upper div or instr consent; [prev or concurrent] courses in [biology, biochemistry] recommended

PHCL 4003. Anti-infective drugs: Drugs that kill invaders. (; 2 cr. ; A-F or Audit; Every Spring)
Principles/mechanisms of anti-infective drugs, and treatments of infectious diseases. prereq: College-level biology

PHCL 4010. Current Research Topics in Pharmacology. (2 cr. ; A-F only; Every Fall)
Cutting-edge research projects in pharmacology. Research seminars, literature studies, discussion sessions, oral presentations. prereq: Upper div or instr consent

PHCL 4020. Chemotherapy: from current anticancer drugs to future cancer therapeutics. (3 cr. ; A-F only; Every Fall)
This course will expose students to the studies of therapeutic agents used for the treatment of cancer. We will study the mechanisms of current anticancer drugs. We will also explore the recent development of novel anticancer agents, as well as the process of drug discovery & development. prereq: College-level biology: PHCL 2001 and/or PHCL3100, GCD4151 recommended.

PHCL 4100. Laboratory in Molecular Pharmacology. (2 cr. ; A-F only; Every Fall & Spring)
Hands-on experimentation using molecular techniques for data collection/analysis. prereq: [2001 or 4001], 3100, [BioC 3021 or BioC 4331], [BioC 4025, BioC 4125 recommended]

PHCL 4343. Pharmacology of the Synapse. (; 3 cr. ; A-F only; Every Fall)
Study synapse as pharmacological gateway to nervous system. Explore physiology of/cellular signalling at synapse, how signalling influences conditions such as Parkinson's disease, depression, anxiety, pain, addiction. How various drugs modify signalling at synapse. recommend: [PHCL 2001, PHCL 3100]

PHCL 4993. Directed Studies. (; 1-3 cr. [max 6 cr.] ; S-N only; Every Fall, Spring & Summer)
Individual study ("dry lab" experience) on selected topics in pharmacology/biomedical science with faculty from the Pharmacology Department or other biomedicine disciplines. Readings and use of scientific literature. prereq: instr consent, dept consent

PHCL 4994. Directed Research. (; 1-3 cr. [max 12 cr.] ; S-N only; Every Fall, Spring & Summer)
Laboratory research ("wet lab" experience) in the areas of pharmacological/biomedical research. prereq: instr consent, dept consent

PHCL 5109. Problems in Pharmacology. (; 1-18 cr. ; Student Option; Every Fall, Spring & Summer)
Research projects and special problems by arrangement. prereq: Upper div or grad student or instr consent Keywords: Pharmacology, Directed, Independent Study, Biomedical, Basic Science, Research, Drug

PHCL 5110. Introduction to Pharmacology. (; 3 cr. ; A-F or Audit; Every Fall)
Basic principles of Pharmacology. Focuses on molecular mechanisms of drug action. prereq: Grad student or instr consent Keywords: Introduction, Pharmacology, Molecular, Drug, Pharmacokinetics, Pharmacodynamics, Protein, Neuropharmacology, Chemotherapy, Pharmacokinetics

PHCL 5111. Pharmacogenomics. (; 3 cr. ; A-F or Audit; Every Spring)
Human genetic variation, its implications. Functional genomics, pharmacogenomics, toxicogenomics, proteomics. Interactive, discussion-based course. prereq: Grad student or instr consent Keywords: Pharmacology, Pharmacogenomics, Toxicogenomics, Proteomics, Genetics, Drug

PHCL 5112. A Graduate Toolkit I: An Introduction to the Scientific Research Lab. (; 1 cr. ; A-F only; Every Fall)
Basic operating principles/techniques of the scientific research lab. Personnel structure, professionalism, authorship/publication. Recombinant protein production/purification, DNA/RNA purification/methods, molecular biology methods, microscopy, model systems/ bioinformatics. prereq: instr consent Keywords: Basic Science, Pharmacology, Personnel, Writing, Presentation, Protein, DNA, Molecule, Microscope, Bioinformatics, Drug

PHCL 5113. A Graduate Toolkit II: Scientific Speaking and Writing for Graduate Students. (; 2 cr. ; A-F only; Every Fall)
Guidance on PowerPoint design, public speaking, question/answer sessions at scientific talks. Practice sessions are videotaped/analyzed to highlight strategies for improvement. Guidance in writing thesis research topic. prereq: Completion of one yr of a grad program Keywords: Pharmacology, Basic Science, Writing, Presentation, Practice, Thesis, Dissertation

PHCL 5462. Neuroscience Principles of Drug Abuse. (; 2 cr. ; Student Option; Periodic Spring)
Current research on drugs of abuse, their mechanisms of action, characteristics shared by various agents, and neural systems affected by them. Offered biennially, spring semester of even-numbered years. prereq: instr consent

Pharmacy (PHAR)

PHAR 1001. Orientation to Pharmacy. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
You may know that pharmacists are responsible for the dispensation of medications, but did you know that pharmacists play a critical role in the healthcare process by ensuring that their patients receive the best overall care? Designed to help you better understand the world of pharmacy, this online pharmacy course will introduce you to this exciting profession and help you gain an understanding of the impact pharmacists have in the patient care process. This course examines what training is necessary for success in the pharmacy field, demonstrates the roles a pharmacist can have in patient care, research and academia, and provides virtual tours of various settings in which pharmacists work. This is not a self-study course. While it is completely online, there are deadlines for assignments throughout the semester. No late registrations will be accepted. Course information is sent to the U of M email addresses of registered students shortly before, and/or on, the first day of classes each Fall, Spring, and Summer term. For more information, contact phar1001@umn.edu or 612-624-7976.

PHAR 1002. Medical Terminology. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Interested in learning the difference between an antigen and an antibiotic? During this course, you will not only increase your medical vocabulary by more than 2500 words at your own pace, you will also learn to identify and articulately describe a wide variety of medical conditions and processes. Communication related to disease states, procedures, and diagnostics in health care can sometimes seem like another language. This course will help you recognize medical abbreviations, relate terms to procedures and diagnostics, and comprehend the meaning of medical terminology by using word elements. If you are interested in the health care field or would like to understand more about your own medical care, this course is a great place to start. This is a completely online, self-paced course but runs on an accelerated 10-week schedule each Fall, Spring, and Summer term. For more information, contact phar1002@umn.edu or 612-624-7976.

PHAR 1003. Non-Prescription Medications and Self-Care: Treating Minor Conditions. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Non-prescription medications and dietary supplements comprise a large market within the healthcare industry. Throughout this course, you'll learn about these medications and other self-care remedies available to treat many different medical conditions. For each condition discussed, you will learn basic causes, signs, and symptoms, self-care guidelines, and when to see a healthcare provider. For medications discussed you will learn the basic mechanism of action, uses, and potential side effects. This course will help you gain a better understanding of how non-prescription and self-care products can be used safely and effectively. This online class is primarily self-paced with due dates for certain aspects at times throughout the semester. Students may choose to work ahead in the course. Course information is sent to the University of Minnesota email addresses of registered students shortly before, and/or on, the first day of classes each fall, spring, and summer term. For more information, contact phar1003@umn.edu or 612-624-7976.

PHAR 1004. Common Prescription Drugs and Diseases. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Are you interested in understanding how some of the most common prescription medications work, why they are used, and how they should be used when treating common ailments? Perhaps you would like to recognize the most common causes of specific diseases, identify their symptoms, and recognize the diagnostic criteria associated with them. Throughout this course, you will learn why some medications can?t be used by certain people, understand how prescription drugs are regulated, and examine the correlation between common prescription drugs and diseases. Additionally, you will explore various drug information resources and learn how to find reliable sources of drug information. This online class is primarily self-paced with due dates for certain aspects at times throughout the semester. Students may choose to work ahead in the course. Course information is sent to the University of Minnesota email addresses of registered students shortly before, and/or on, the first day of classes each fall, spring, and summer term. For more information, contact phar1004@umn.edu or 612-624-7976.

PHAR 3206. Foundations of Health Literacy. (; 3 cr. ; Student Option; Every Fall & Spring)
In this course, we will focus on health literacy and its implications for patients, health care providers, and the health care system at large. We will discuss the consequences of poor health literacy and practical strategies for improving health literacy. This will include steps that individual patients can take and communication strategies for future health care providers. You will explore disparities in health and health care and the relationship to health literacy. We will discuss cultural competency through both student discussions and a book club and consider the impact on the patient experience. Functional health literacy includes being able to navigate the health care system and health insurance. As a class, we will discuss choosing a health insurance policy and controversies therein.

PHAR 3700. Fundamentals of Pharmacotherapy. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Pharmacotherapy?the treatment of disease through the administration of medications? is a field particularly interesting to many healthcare workers. This course is designed to introduce you to some of the main drug classes available for the treatment of particular diseases. You will also learn about basic pharmacology, recognize brand and generic drug names, and explore their common uses and therapeutic classes. A basic understanding of treatment options available for common disease states will also be developed during this course. Additionally, the course develops basic proficiency in the use of drug information resources. This is a completely online course with due dates throughout the semester though students have the option to work ahead if they choose. Course information is sent to the University of Minnesota email addresses of registered students shortly before, and/or on, the first day of classes each fall, spring, and summer term. For more information, contact phar3700@umn.edu or 612-624-7976. Prereq: Medical terminology recommended

PHAR 3800. Pharmacotherapy for the Health Professions. (; 3 cr. ; A-F only; Every Fall & Spring)
Pharmacotherapy?the treatment of disease through the administration of medications? is a topic central to the practice of nursing. This course is designed to introduce you to the main drug classes available for the treatment of particular diseases and the monitoring parameters for patients taking these medications. You will also learn about basic pharmacology, recognize brand and generic drug names, and explore their common uses and therapeutic classes. A basic understanding of contraindications and precautions related to various classes of medications will also be covered. Additionally, the course develops basic proficiency in the use of drug information resources. Students will be assessed through patient case quizzes and exams. This is a completely online course with weekly due dates. Course information is sent to the University of Minnesota email addresses of registered students shortly before and/or on the first day of classes each fall and spring term. For more information, contact phar3800@umn.edu or 612-624-7976. Prereq: Anatomy and physiology

PHAR 4204W. Drugs and the U.S. Healthcare System. (CIV,WI; 3 cr. ; Student Option; Every Fall & Spring)
Being an empowered patient is important when discussing ethics-driven issues within the U.S. healthcare system. This course will expose students to current controversial issues surrounding medications and national healthcare and help students examine their own role as a participant in this system. Students will learn to draw comparisons between medication use systems around the world and analyze other controversies related to access, choice, and quality of healthcare. During this course, students will explore how their choices, ethics, and behavior affect societal decisions surrounding the availability of medications in the U.S. and what their rights are as a citizen-participant during the healthcare debate. Students are expected to have completed the first-year writing requirement (https://cla.umn.edu/writing-studies/first-year-writing), or equivalent, prior to registering for this class. This is a completely online course with weekly due dates and is offered each Fall and Spring term. For more information, contact phar4204@umn.edu or 612-624-7976.

PHAR 4248. Drugs of Abuse. (; 2 cr. ; S-N only; Every Spring)
Medicinal chemistry/pharmacology/toxicology of substances of abuse. Synthesis/natural product extraction of illicit drugs. Dangers of clandestine lab practices. Sociological aspects of abuse.

PHAR 4293. Directed Research I for Undergraduates. (1-5 cr. ; Student Option; Every Fall, Spring & Summer)
Work with College of Pharmacy faculty. prereq: undergrad, instr consent

PHAR 4294. Directed Study I for Undergraduates. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Individualized study. Students work with faculty on special projects. prereq: Undergrad, instr consent

PHAR 5201. Applied Medical Terminology. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
This course will help students recognize medical abbreviations, relate terms to procedures and diagnostics, comprehend the meaning of medical terminology by using word elements, and apply medical terms in the context of patient care. Communication related to disease states, procedures, and diagnostics in health care can sometimes seem like another language. During this course, students will not only increase their medical vocabulary by more than 2500 words in a self-paced manner, they will also learn to identify and articulately describe a wide variety of medical conditions and processes. This is a completely online, self-paced course but runs on an accelerated 10-week schedule each Fall, Spring, and Summer term. For more information, contact phar5201@umn.edu or 612-624-7976. Prereq: Basic knowledge of human anatomy/physiology

PHAR 5204. Drugs and the US Healthcare System. (; 3 cr. ; Student Option; Every Fall & Spring)
Being an empowered patient is important when discussing ethics-driven issues within the U.S. healthcare system. This course will expose students to current controversial issues surrounding medications and national healthcare and help students examine their own role as a participant in this system. Students will learn to draw comparisons

between medication use systems around the world and analyze other controversies related to access, choice, and quality of healthcare. During this course, students will explore how their choices, ethics, and behavior affect societal decisions surrounding the availability of medications in the U.S. and what their rights are as a citizen-participant during the healthcare debate. Students are expected to have completed the first-year writing requirement (https://cla.umn.edu/writing-studies/first-year-writing), or equivalent, prior to registering for this class. This is a completely online course with weekly due dates and is offered each Fall and Spring term. For more information, contact phar4204@umn.edu or 612-624-7976.

PHAR 5205. Obesity: Issues, Interventions, Innovations. (; 2 cr. ; Student Option; Every Spring)
This course will focus on the role of the pharmacist in treating obesity. Students will learn the pharmacology of past and current medications to treat obesity, as well as the pathophysiology of the disease to understand why more options aren?t available. Students will explore drug information sources for dietary supplements for weight loss, discuss the care of an obese patient including non-pharmacologic treatments for obesity, as well as recognizing the potential for bias and its effect on patient care. Finally, students will look at bariatric surgery and discuss some specific adjustments in care for bariatric patients. This is a completely online course with weekly due dates offered each Fall and Spring term. For more information, contact phar5205@umn.edu or 612-624-7976. Prereq: Second or third year pharmacy student, or student enrolled in a graduate science or health-related program. Biochemistry and physiology suggested.

PHAR 5212. Survey of Pediatric Metabolic, Genetic, and Oncologic Disease. (; 2 cr. ; A-F only; Every Fall & Summer)
Appraisal of major genetic/metabolic disorders and oncologic diseases of childhood. Disease state epidemiology, pharmacotherapy, monitoring, practical applications. prereq: Second year or higher in College of Pharmacy or instr consent

PHAR 5230. Principles of Clinical Pharmacology Research. (2 cr. ; A-F only; Every Fall)
Drug therapy investigation. Topics include experimental design of drug studies in human research subject volunteers. Topics related to individualization of therapy including effects of genetic polymorphisms, demographic variables, physiologic variables, age on drug disposition treatment outcomes. prereq: 3rd Year Pharmacy Student or instr consent

PHAR 5270. Therapeutics of Herbal and Other Natural Medicinals. (; 2 cr. ; A-F or Audit; Every Spring)
Herbal products/supplements. Pharmacology/ clinical indications/drug interactions of common products in nontraditional complementary health care. Historical significance/evidenced-based role of products in health care. Case studies of clinical applications. prereq: organic chemistry, pathophysiology of disease states, 3rd or 4th yr PHAR

PHAR 5310. Topics in Pharmacy Ethics (Pandemics). (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Using COVID-19 as a pandemic model, students in this elective course will explore the ethical considerations informing personal, public policy, and biomedical research decisions during a pandemic. Students will apply ethical principles and selected schools of ethical thought to discuss and debate those decisions.

PHAR 5700. Applied Fundamentals of Pharmacotherapy. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Pharmacotherapy, the treatment of disease through the administration of medications, is a field particularly interesting to many health care workers. This course is designed to introduce students to some of the main drug classes available for the treatment of particular diseases. Students will also learn about basic pharmacology, recognize brand and generic drug names, and explore their common uses and therapeutic classes. A basic understanding of treatment options available for common disease states will also be developed during this course. Additionally, the course develops basic proficiency in the use of drug information resources. This is a completely online course with due dates throughout the semester, though students have the option to work ahead if they choose. This course is offered each Fall, Spring, and Summer term. For more information, contact phar3700@umn.edu or 612-624-7976. Prereq: Medical terminology recommended

PHAR 5800. Pharmacotherapy for the Health Professions. (; 3 cr. ; A-F only; Every Fall)
Pharmacotherapy, the treatment of disease through the administration of medications, is a topic central to the practice of nursing. This course is designed to introduce you to the main drug classes available for the treatment of particular diseases and the monitoring parameters for patients taking these medications. You will also learn about basic pharmacology, recognize brand and generic drug names, and explore their common uses and therapeutic classes. A basic understanding of contraindications and precautions related to various classes of medications will also be covered. Additionally, the course develops basic proficiency in the use of drug information resources. This is a completely online course with weekly due dates offered each Fall term. For more information, contact phar5800@umn.edu or 612-624-7976. Prereq: Anatomy and physiology

Pharmacy Summer Research (PHRM)

PHRM 4999. Pharmacy Summer Research. (; 0 cr. ; No Grade Associated; Every Summer)
Pharmacy Summer Research

Philosophy (PHIL)

PHIL 1001. Introduction to Logic. (MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Sharpen your reasoning skills through a close examination of arguments. Learn formal methods for representing and assessing arguments, including how to represent informal arguments in formal languages, and how to evaluate whether the premises of an argument entail its conclusion.

PHIL 1001H. Honors Course: Introduction to Logic. (MATH; 4 cr. ; A-F only; Periodic Fall & Spring)
Sharpen your reasoning skills through a close examination of arguments. Learn formal methods for representing and assessing arguments, including how to represent informal arguments in formal languages, and how to evaluate whether the premises of an argument entail its conclusion.

PHIL 1002W. Introduction to Philosophy. (AH,WI; 4 cr. ; Student Option; Every Fall & Spring)
Problems, methods, historical/contemporary schools of philosophy.

PHIL 1003W. Introduction to Ethics. (CIV,WI; 4 cr. ; Student Option; Every Fall & Spring)
Are values/principles relative to our culture? Is pleasure valuable? Are there any absolute rules? These questions and others are addressed through critical study of moral theories.

PHIL 1004W. Introduction to Political Philosophy. (AH,WI,CIV; 4 cr. ; Student Option; Every Fall & Spring)
Government -- what are its purpose; the limits on its authority; its responsibilities to citizens (and vice versa)? What roles do freedom, equality, rights, property, punishment and justice play here? Join in as we discuss and debate competing views.

PHIL 1005. Scientific Reasoning. (; 4 cr. ; Student Option; Every Fall)
How does science work? What is scientific method? How to evaluate scientific information in popular media or specialized publications, especially when it relates to technology used in everyday life? General reasoning skills. prereq: [1st or 2nd] yr student or instr consent

PHIL 1006W. Philosophy and Cultural Diversity. (AH,WI,DSJ; 4 cr. ; Student Option; Every Fall & Spring)
Central problems/methods of philosophy through culturally diverse texts. Focus is critical/comparative, reflecting range of U.S. philosophical traditions.

PHIL 1007. Introduction to Political Philosophy Practicum. (; 1 cr. ; Student Option; Every Fall & Spring)
Students do at least two hours a week of community service and connect their service activities in writing to issues discussed in 1004. prereq: concurrent registration is required (or allowed) in 1004W

PHIL 1026W. Philosophy and Cultural Diversity. (AH,WI,DSJ; 3 cr. ; Student Option; Every Summer)

Central problems/methods of philosophy through culturally diverse texts. Focus is critical/comparative, reflecting a range of U.S. philosophical traditions.

PHIL 1201. Critical Reasoning. (AH; 4 cr. ; Student Option; Every Spring)
In this course, much of our focus will be on what makes reasoning good or bad. We will learn to suss out bad argumentation, and pinpoint the precise mistake in reasoning that is at fault in particular cases. Patterns will emerge, which will help us learn how to better argue for beliefs that we hold, and claims we take to be true. We will especially focus on developing these skills in various, real-world contexts, so that they can be transferable to your future life, career, and decision-making. To that end, special attention will be paid to the kinds of traps we can fall into when we encounter argumentation via social media.

PHIL 1760. Selected Topics in Philosophy. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Philosophical topics of contemporary interest. Topics specified in Class Schedule.

PHIL 1914. Space and Time: from Aristotle to Einstein. (; 3 cr. ; Student Option; Periodic Fall)
Space and time belong to those concepts that we all intuitively use to make sense of the world around us. They are also crucial in all of modern science. But modern physics has brought along radical revisions in our view on these concepts. This course will introduce you to these revisions but also raise questions that still remain unestablished. This course will take you through a history of ideas about the nature of space and time ranging from Aristotle and Euclid in the 3rd century BC to Einstein's theory of general relativity, and the Big Bang model and black holes of modern cosmology. Along the way, we will discuss specific questions like: what is the geometry of physical space? Or is the choice of geometry a mere convention? Is space merely a relational notion? Or should we conceive of it as some kind of entity in its own right: as the stage on which the evolution of the universe takes place? How does Einstein's relativity theory change the verdict on these questions? Similar questions will be raised about time. In addition, we will discuss questions like: Is time travel physically possible? Does time have a direction? Do the past, present and future have a different status? And if not, how do we distinguish the past from the future?

PHIL 1916W. What's So Great About Classical Music?. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
Despite what you may have heard, classical music isn't just a dry, arid landscape of interest only to culture snobs. The great masterpieces are supreme products of the human imagination touching on all aspects of the human condition - comic, tragic, sacred, profane. This is music that has moved generations of listeners to laughter and to tears, while at the same time inviting them to contemplate and reflect on its inner order and architectural grandeur. This seminar will present some of the great works of the classical tradition along with an explanation of what makes them so remarkable. No prior knowledge about music is required - just an open mind.

PHIL 3001W. General History of Western Philosophy: Ancient Period. (AH,WI; 4 cr. ; Student Option; Every Fall)
Major developments in ancient Greek philosophic thought: pre-Socrates, Socrates, Plato, Aristotle, Hellenistic thinkers.

PHIL 3005W. General History of Western Philosophy: Modern Period. (AH,WI; 4 cr. ; Student Option; Every Spring)
Can anything be known beyond a shadow of a doubt? How ought scientific knowledge be discovered and justified? In what does one's identity as a person consist? How does our human nature affect the way that we conceive of and come to know the world? This course examines the momentous intellectual transformations in Europe during the 17th and 18th centuries that inspired such questions and their innovative solutions.

PHIL 3100. Value Theory Practicum. (; 1 cr. [max 3 cr.] ; Student Option; Every Fall & Spring)
Combines issues in ethics/political philosophy courses to needs of people in Twin Cities through community service. At least 26 hours of community service for semester is required. prereq: [concurrent registration is required (or allowed) in 3301 or concurrent registration is required (or allowed) in 3302W or concurrent registration is required (or allowed) in 3304 or concurrent registration is required (or allowed) in 3307 or concurrent registration is required (or allowed) in 3308], instr consent

PHIL 3201. Free Will and Responsibility. (; 3 cr. ; Student Option; Periodic Fall & Spring)
What distinguishes actions from mere happenings? How do we accommodate our conception of ourselves as agents in a world governed by causal laws? Does free action require alternate possibilities? Is free will required to hold people accountable for actions? Conditions of moral responsibility.

PHIL 3231. Philosophy and Language. (; 4 cr. ; Student Option; Every Fall & Spring)
Philosophical issues concerning the nature and use of human language.

PHIL 3234. Knowledge and Society. (; 4 cr. ; Student Option; Periodic Fall)
Critical discussion of concepts such as knowledge, objectivity, justification, rationality, evidence, authority, expertise, and trust in relation to the norms and privileges of gender, race, class, and other social categories.

PHIL 3301. Environmental Ethics. (ENV; 4 cr. ; Student Option; Spring Odd Year)
Philosophical basis for membership in moral community. Theories applied to specific problems (e.g., vegetarianism, wilderness preservation). Students defend their own reasoned views about moral relations between humans, animals, and nature.

PHIL 3302W. Moral Problems of Contemporary Society. (CIV,WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
How do we determine what is right and wrong? How should we live our lives? What do we owe others? Moral/ethical thought applied to problems and public disputes (e.g., capital punishment, abortion, affirmative action, animal rights, same-sex marriage, environmental protection).

PHIL 3303W. Business Ethics. (WI; 4 cr. ; Student Option; Periodic Fall & Spring)
The course offers a comprehensive overview of ethical questions that arise in the context of doing business, including questions regarding what duties companies have to consumers and the general public, and what the moral obligations businesses have to employees and shareholders.

PHIL 3304. Law and Morality. (; 3 cr. ; Student Option; Periodic Fall & Spring)
What is law? Must true laws be just? When (if ever) are civil disobedience or legal punishment morally justified? Do good laws incorporate (or legislate) morality? Consider and debate these issues using philosophical texts, case law, and the occasional novel.

PHIL 3305. Medical Ethics. (; 4 cr. ; Student Option; Every Spring)
Moral problems confronting physicians, patients, and others concerned with medical treatment, research, and public health policy. Topics include abortion, living wills, euthanasia, genetic engineering, informed consent, proxy decision-making, and allocation of medical resources.

PHIL 3311W. Introduction to Ethical Theory. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Nature and justification of moral judgments and moral principles; analysis of representative moral views.

PHIL 3322W. Moral Problems of Contemporary Society. (CIV,WI; 3 cr. ; Student Option; Every Summer)
How do we determine what is right and wrong? How should we live our lives? What do we owe others? Moral/ethical thought applied to problems and public disputes (e.g., capital punishment, abortion, affirmative action, animal rights, same-sex marriage, environmental protection).

PHIL 3601W. Scientific Thought. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Science influences us daily, shaping how we understand ourselves and interpret nature. This course is an introduction to how scientists reason about the world, what that means for our lives, and the status of science as a human activity. What is science and what? s so great about it? Is science the ultimate authority on the world and our place in it? This course examines the authority of science, how scientists reason, and science?s status as a human activity. prereq: One course in philosophy or natural science

PHIL 3602. Science, Technology, and Society. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Philosophical issues that arise out of interaction between science, technology, society (e.g., religion and science, genetics and society, science and the environment).

PHIL 3605. Disease, Diagnosis, and Intervention: Conceptual Issues in Medicine. (3 cr. ; Student Option; Periodic Fall & Spring)
Contemporary medicine dominates our daily concerns and societal conversation. From insurance coverage to the consumer advertising of pharmaceuticals, the variety of issues and their visibility is patently obvious. However, conceptual issues in medicine, such as what counts as health and disease or what do we mean by "evidence-based" or "precision" medicine, are arguably just as important--if not prior to--many of these other issues. For example, if doctors do not consider something an "official" disease or condition, it is unlikely your insurance company will pay to treat it. Additional conceptual questions include: what role do theories play in medicine? Can scientific experiments be replicated in clinical medicine? Should all medicine be based on evidence? How do we know what causes health or disease? What do advances in neuroscience reveal about the relationship between mind and body, especially with respect to mental health and illness? What properties do physicians measure and why? How does probability and chance enter into medical practice (e.g., diagnosis, therapy, and rehabilitation)? This course is an introduction to these and other related issues in medicine with an emphasis on their diversity and heterogeneity. It is designed for undergraduates across a variety of majors with an interest in these conceptual questions, including but not limited to Animal Science; Anthropology; Biochemistry; Biology, Society and Environment; Chemistry; Ecology, Evolution and Behavior; Genetics, Cell Biology and Development; Microbiology; Neuroscience; Physiology; Psychology). No prior knowledge of medicine or philosophy is required; I do not assume that you have any previous exposure to the material we will be covering. Most of the assignments for this course are writing oriented. The goal is to identify, characterize, and critically reflect on the issues raised in our discussions and do this in the medium of writing. At the end of the class you will possess new analytical skills and recognize the value of philosophical investigation into the medical concepts and practices, including its application to your everyday life. Additionally, it is directly relevant to the Critical Analysis and Reasoning Skills portion of the MCAT.

PHIL 3607. Philosophy of Psychology. (; 4 cr. ; Student Option; Periodic Fall & Spring)
What are minds and mental states (like desires and beliefs)? How are these different from brains and brain states? Should scientific explanation abandon any appeal to the mental (like behaviorism) or can we offer a scientific account of mind? prereq: One course in philosophy or psychology

PHIL 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

PHIL 3993. Directed Studies. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

PHIL 4010. Ancient Philosophers. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Spring)
Major work of selected ancient philosophers (e.g., Plato's Parmenides, Plato's Sophist, Aristotle's Metaphysics). Works discussed may vary from offering to offering. prereq: 3001 or instr consent

PHIL 4040. Rationalists. (3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Major work of selected early modern rationalists (e.g., Descartes' Principles of Philosophy, Spinoza's Ethics, Conway's Principles of the Most Ancient and Modern Philosophy, Leibniz's Discourse on Metaphysics). Works discussed may vary from offering to offering.

PHIL 4055. Kant. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Major work (e.g., Critique of Pure Reason). prereq: 3005 or 4004 or instr consent

PHIL 4085. Wittgenstein. (3 cr. ; Student Option; Periodic Fall & Spring)
In "Philosophical Investigations" Wittgenstein challenged some of the most long-standing and entrenched intuitions of philosophers -- basic intuitions about mind, rationality, linguistic understanding, and the very nature of philosophical/conceptual inquiry. Many of these intuitions remain entrenched and Wittgenstein's challenge is as relevant today as it was in 1950. In Phil 4805 we examine the text and the secondary literature, and do so in the light of issues and debates that continue to demand attention.

PHIL 4100. Value Theory Practicum. (; 1 cr. [max 3 cr.] ; Student Option; Every Fall & Spring)
Issues studied in ethics/political philosophy courses applied to needs of people in Twin Cities through community service. At least 26 hours of community service for semester is required. prereq: [concurrent registration is required (or allowed) in 4320 or concurrent registration is required (or allowed) in 4321 or or concurrent registration is required (or allowed) in 4330 or concurrent registration is required (or allowed) in 4324 or concurrent registration is required (or allowed) in 4414], instr consent

PHIL 4101. Metaphysics. (; 3 cr. ; Student Option; Fall Even Year)
Broadly speaking, metaphysics is the study of the nature of reality. Metaphysical questions include questions about what kinds of things exist, what is the nature of things, what are persons, what is possible or impossible, what is the nature of time, what is causality, and many other fundamental questions about the world. The aim of this course is to introduce students to some of the central questions of metaphysics to investigate some of their answers. prereq: One course in history of philosophy or instr consent

PHIL 4105W. Epistemology. (WI; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Theories of nature/sources of knowledge/ evidence. prereq: 1001 or instr consent

PHIL 4231. Philosophy of Language. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Theories of reference, linguistic truth, relation of language/thought, translation/synonymy. prereq: 1001 or 5201 or instr consent

PHIL 4311W. History of Moral Theories. (WI; 3 cr. ; Student Option; Periodic Fall)
Is human nature fundamentally selfish or are we sympathetic creatures? What is free will and do we have it? Do moral principles have a rational basis or are our moral judgments expressions of feelings? Should morality be thought of in terms of acting on principle or producing good outcomes? We will focus on these and other questions as they are explored in primary texts from the early modern history of western philosophy. prereq: 1003 or instr consent

PHIL 4320. Intensive Study of a Historical Moral Theory. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Intensive consideration of an author or theory in the history of moral or political philosophy. prereq: 1003 or instr consent

PHIL 4326. Lives Worth Living: Questions of Self, Vocation, and Community. (AH,CIV; 4 cr. [max 8 cr.] ; Student Option; Every Summer)
Immersion experience. Students live together as a residential community of learners. Works of philosophy, history, and literature form backdrop for exploring such questions as "How is identity constructed?," "What is vocation?," and "What experiences of community are desirable in a life?" Each student creates a life-hypothesis for a life worth living. prereq: instr consent

PHIL 4331. Contemporary Moral Theories. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Is morality objective, just a matter of feeling, or something in between? How do we know even the most basic of moral truths? Do I always have a reason to do what is moral? What motivates people to be moral and why do some people behave immorally? This class looks at these and related questions in metaethics, moral psychology, and other areas of contemporary moral theory. prereq: 1003 or instr consent

PHIL 4350. Catching Lives Worth Living: Participation in the Growth of a Living-Learning Community. (; 2 cr. [max 4 cr.] ; Student Option; Every Summer)
Involvement in a democratic living-learning community built by students/instructors.

Students participate in community activities and daily instructor meetings. Four seven-day offerings each summer. prereq: Application, instr consent

PHIL 4414. Political Philosophy. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Survey of historical/contemporary works in political philosophy. prereq: 1004 or instr consent

PHIL 4510. Philosophy of the Individual Arts. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Aesthetic problems that arise in studying or practicing an art. prereq: 3502

PHIL 4605. Space and Time. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Philosophical problems concerning nature/structure of space, time, and space-time. prereq: Courses in [philosophy or physics] or instr consent

PHIL 4607. Philosophy of the Biological Sciences. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Biology dominates the landscape of contemporary scientific research, and yet "biology" consists of a variety of different disciplinary approaches: from protein biochemistry to field ecology, from developmental biology to evolutionary genetics. Many philosophical issues can be found in the concepts and practices of life science researchers from these different disciplines. What is the structure of evolutionary theory? What is a gene? What are the units of selection? What is an individual? What counts as a "cause"? What is the relationship between evolution and development? Are all biological phenomena reducible to genes or molecules? What are adaptations, and how do we identify them? What is an ecological niche? Is there a progressive trend in the history of life? Is there such a thing as 'human nature'? This course is an introduction to these and other related issues in the biological sciences with an emphasis on their diversity and heterogeneity. It is designed for advanced undergraduates with an interest in conceptual questions and debates in biology that are manifested across a variety of majors (e.g., animal science; anthropology; biochemistry; biology, society and environment; biosystems and agricultural engineering; chemistry; ecology, evolution and behavior; genetics, cell biology and development; microbiology; neuroscience; physiology; plant biology; psychology). Some of these issues will appear familiar from previous coursework or opportunities, whereas new issues will be intriguing because of their similarities and differences with those that have been encountered in other contexts.

PHIL 4615. Minds, Bodies, and Machines. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Mind-body problem. Philosophical relevance of cybernetics, artificial intelligence, computer simulation. Mental phenomena present the philosopher with a number of deep but inescapable puzzles and challenges. We tend to suppose that we know what it is to have a mind, to have beliefs, desires, etc., and we think that we know how to explain our own behavior and that of others -- and all of this without any formal training in the relevant science. All of this is surely amazing; indeed it verges on the outrageous. We admit to not knowing the makeup of the simplest structures, to not knowing how to explain the behavior of the simplest organisms -- we, OF COURSE, leave such issues to scientific investigation. Yet, at the same time, we think we know how to explain the behavior of this most complex of systems; we know how to do it, and we know what we are talking about when we explain behavior by citing the relevant beliefs, desires, etc. And, to repeat, we know all of this with no formal training. Strange indeed. Not only is this initial confidence puzzling, but attempts to articulate the mental story and to integrate it into the larger scientific picture have all proven problematical. We start our investigation with a very brief glance at a mid-century proposal that initiated a very different way of thinking about mind: the proposal by Turing -- one of the great minds of the 20th Century--that machines of a certain kind could exhibit intelligence. A story told in part in the recent movie, The Imitation Game. We then turn to some more traditional approaches to mind: Cartesianism, Behaviorism and Materialism. prereq: one course in philosophy or instr consent

PHIL 4760. Selected Topics in Philosophy. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Philosophical problems of contemporary interest. Topics specified in Class Schedule. prereq: 3 [3xxx-5xxx] cr in philosophy or instr consent

PHIL 4993. Directed Studies. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

PHIL 4995. Senior Project (Directed Studies). (; 1 cr. ; A-F only; Every Fall, Spring & Summer)
Guided individual study leading to research paper that satisfies senior project requirement. prereq: instr consent, dept consent

PHIL 5010. Ancient Philosophers. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Spring)
Major work of selected ancient philosophers (e.g., Plato's Parmenides, Plato's Sophist, Aristotle's Metaphysics). Works discussed vary. prereq: 3001 or instr consent

PHIL 5040. Rationalists. (3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Major work of selected early modern rationalists (e.g., Descartes' Principles of Philosophy, Spinoza's Ethics, Conway's Principles of the Most Ancient and Modern Philosophy, Leibniz's Discourse on Metaphysics). Works discussed may vary from offering to offering.

PHIL 5085. Wittgenstein. (3 cr. ; Student Option; Periodic Fall & Spring)
In "Philosophical Investigations" Wittgenstein challenged some of the most long-standing and entrenched intuitions of philosophers -- basic intuitions about mind, rationality, linguistic understanding, and the very nature of philosophical/conceptual inquiry. Many of these intuitions remain entrenched, and Wittgenstein's challenge is as relevant today as it was in 1950. In Phil 4805 we examine the text and the secondary literature, and do so in the light of issues and debates that continue to demand attention.

PHIL 5101. Metaphysics. (3 cr. ; Student Option; Fall Even Year)
Broadly speaking, metaphysics is the study of the nature of reality. Metaphysical questions include questions about what kinds of things exist, what is the nature of things, what are persons, what is possible or impossible, what is the nature of time, what is causality, and many other fundamental questions about the world. The aim of this course is to introduce students to some of the central questions of metaphysics to investigate some of their answers. prereq: One course in history of philosophy or instr consent

PHIL 5201. Symbolic Logic I. (; 4 cr. ; Student Option; Every Fall & Spring)
Study of syntax and semantics of sentential and first-order logic. Symbolization of natural-language sentences and arguments. Development of deductive systems for first-order logic. Metatheoretic proofs and methods, including proof by mathematical induction and proof of consistency and completeness. prereq: 1001 or instr consent

PHIL 5202. Symbolic Logic II. (; 4 cr. ; Student Option; Every Spring)
Elements of set theory, including the concepts of enumerability and nonenumerability. Turing machines and recursive functions; the results of Church, Godel, and Tarski and the philosophical significance of those results. prereq: 5201 or instr consent

PHIL 5209. Mathematical Methods for Philosophy. (4 cr. ; Student Option; Fall Odd Year)
Introduction to some of the mathematical methods used throughout philosophy, such as sets, graphs, automata, probability and decision theory, statistics, and computer simulation, both explicitly and through example applications. prereq: prior course in mathematics, logic, or mathematics-related discipline or or instr consent

PHIL 5211. Modal Logic. (; 4 cr. ; Student Option; Spring Odd Year)
Axiomatic and semantic treatment of propositional and predicate modal logics; problems of interpreting modal languages. prereq: 5201 or instr consent

PHIL 5222. Philosophy of Mathematics. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Major philosophical questions arising in connection with mathematics. What is mathematics about? How do we know the mathematics we do? What is the relation between mathematics and the natural sciences? Selected readings of leading contributors such as Frege, Dedekind, Russell, Hilbert, Brouwer, Godel, Quine. prereq: College

level logic or mathematics course or instr consent

PHIL 5231. Philosophy of Language. (3 cr. ; Student Option; Periodic Fall & Spring)
Theories of reference, linguistic truth, relation of language/thought, translation/synonymy. prereq: 1001 or 5201 or instr consent

PHIL 5311. History of Moral Theories. (3 cr. ; Student Option; Periodic Spring)
Is human nature fundamentally selfish or are we sympathetic creatures? What is free will and do we have it? Do moral principles have a rational basis or are our moral judgments expressions of feelings? Should morality be thought of in terms of acting on principle or producing good outcomes? We will focus on these and other questions as they are explored in primary texts from the early modern history of western philosophy. prereq: 1003W or instr consent or GRAD

PHIL 5320. Intensive Study of a Historical Moral Theory. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Intensive consideration of an author or theory in the history of moral or political philosophy. prereq: 1003 or instr consent

PHIL 5326. Lives Worth Living: Questions of Self, Vocation, and Community. (4 cr. ; Student Option; Every Summer)
Immersion experience. Students live together as a residential community of learners. Works of philosophy, history, and literature form backdrop for exploring such questions as "How is identity constructed?," "What is vocation?," and "What experiences of community are desirable in a life?" Each student creates a life-hypothesis for a life worth living. prereq: instr consent

PHIL 5331. Contemporary Moral Theories. (3 cr. ; Student Option; Periodic Fall & Spring)
Is morality objective, just a matter of feeling, or something in between? How do we know even the most basic of moral truths? Do I always have a reason to do what is moral? What motivates people to be moral and why do some people behave immorally? This class looks at these and related questions in metaethics, moral psychology, and other areas of contemporary moral theory. prereq: 1003 or instr consent

PHIL 5350. Catching Lives Worth Living: Participation in the Growth of a Living-Learning Community. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Summer)
Involvement in a democratic living-learning community built by students/instructors. Students participate in community activities and daily instructor meetings. Four seven-day offerings each summer. prereq: Application, instr consent

PHIL 5414. Political Philosophy. (3 cr. ; Student Option; Periodic Fall & Spring)
Works in political philosophy, whether historical or more contemporary, are one central element of the study of philosophy more broadly. As we will address these works, and the issues and concepts they take up, they fall within the larger field of moral philosophy. Like other works in this broad category, discussion in political philosophy typically consider both metaethical and normative questions. Metaethical questions concern the concepts we use as we consider matters of right and wrong or of ethical value. In the realm of political philosophy, authors consider rightness, wrongness and ethical value as they bear on political societies and political leaders, and not only on citizens but on non-citizens who experience the effects of political power. Examples of such questions include: What is justice? What is political power? What are freedom, equality and autonomy? Normative questions, by contrast, concern matters of practice. In the context of moral and political philosophy, they are typically questions about what we must do or refrain from doing if we are to act rightly (as opposed to prudently or efficiently for instance). Examples in the political realm include: What are just standards of criminal punishment? What obligations does a just state have to citizens and to non-citizen residents? What right, if any, do citizens and others have to protest state laws, policies and actions? What rights can citizens or others claim to equality under the law? What grounds or justifies our responses to such questions? Over the course of this semester, we will read both canonical texts in the history of political philosophy and pieces by a variety of authors who are less well known. Our aim will be to improve our ability to understand broad claims and more nuanced points, to compare and critically assess contrasting views, and to appreciate the ways in which political philosophers often draw or expand on others' works even as they challenge them. We will also be working towards improvements in the difficult task of explaining and supporting claims and analyses, in short written pieces, longer essays and oral discussions. prereq: 1004 or instr consent

PHIL 5415. Philosophy of Law. (; 3 cr. ; Student Option; Periodic Spring)
Analytical accounts of law and legal obligation. prereq: 1003 or 1004 or 3302 or social science major or instr consent

PHIL 5510. Philosophy of the Individual Arts. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Aesthetic problems that arise in studying or practicing an art. prereq: 3502

PHIL 5601. History of the Philosophy of Science. (; 3 cr. ; Student Option; Periodic Fall & Spring)
History of logical empiricism, from its European origins in first half of 20th century to its emergence as nearly universal account of science in post-war Anglo-American philosophy. prereq: instr consent

PHIL 5602. Scientific Representation and Explanation. (; 3 cr. ; Student Option; Periodic Fall)
Contemporary issues concerning representation and explanation of scientific facts. prereq: instr consent

PHIL 5603. Scientific Inquiry. (3 cr. ; Student Option; Periodic Spring)
Philosophical theories of methods for evaluating scientific hypotheses. Role of experimentation in science. How hypotheses are accepted within scientific community.

PHIL 5605. Space and Time. (; 3 cr. ; Student Option; Periodic Fall)
Philosophical problems concerning nature/structure of space, time, and space-time. prereq: Courses in [philosophy or physics] or instr consent

PHIL 5606. Philosophy of Quantum Mechanics. (; 3 cr. ; Student Option;)
Problems of interpretation in ordinary (nonrelativistic) quantum mechanics. Two-slit experiment, Schrodinger cat paradox (measurement problem), Einstein-Podolsky-Rosen paradox. Leading approaches to interpretation (Copenhagen, hidden variables, universal wave function) and their connections with philosophical issues.

PHIL 5607. Philosophy of the Biological Sciences. (3 cr. ; Student Option; Periodic Fall & Spring)
Biology dominates the landscape of contemporary scientific research, and yet "biology" consists of a variety of different disciplinary approaches: from protein biochemistry to field ecology, from developmental biology to evolutionary genetics. Many philosophical issues can be found in the concepts and practices of life science researchers from these different disciplines. What is the structure of evolutionary theory? What is a gene? What are the units of selection? What is an individual? What counts as a "cause"? What is the relationship between evolution and development? Are all biological phenomena reducible to genes or molecules? What are adaptations, and how do we identify them? What is an ecological niche? Is there a progressive trend in the history of life? Is there such a thing as 'human nature'? This course is an introduction to these and other related issues in the biological sciences with an emphasis on their diversity and heterogeneity. It is designed for advanced undergraduates with an interest in conceptual questions and debates in biology that are manifested across a variety of majors (e.g., Animal Science; Anthropology; Biochemistry; Biology, Society and Environment; Biosystems and Agricultural Engineering; Chemistry; Ecology, Evolution and Behavior; Genetics, Cell Biology and Development; Microbiology; Neuroscience; Physiology; Plant Biology; Psychology). Some of these issues will appear familiar from previous coursework or opportunities, whereas new issues will be intriguing because of their similarities and differences with those that have been encountered in other contexts. prereq: Courses in [philosophy or biology] or instr consent

PHIL 5615. Mind, Bodies and Machines. (3 cr. ; Student Option; Periodic Fall & Spring)
Mind-body problem. Philosophical relevance of cybernetics, artificial intelligence, computer simulation. Mental phenomena present the philosopher with a number of deep but inescapable puzzles and challenges. We tend to suppose that we know what it is to have a

mind, to have beliefs, desires, etc., and we think that we know how to explain our own behavior and that of others -- and all of this without any formal training in the relevant science. All of this is surely amazing; indeed it verges on the outrageous. We admit to not knowing the makeup of the simplest structures, to not knowing how to explain the behavior of the simplest organisms -- we, OF COURSE, leave such issues to scientific investigation. Yet, at the same time, we think we know how to explain the behavior of this most complex of systems; we know how to do it, and we know what we are talking about when we explain behavior by citing the relevant beliefs, desires, etc. And, to repeat, we know all of this with no formal training. Strange indeed. Not only is this initial confidence puzzling, but attempts to articulate the mental story and to integrate it into the larger scientific picture have all proven problematical. We start our investigation with a very brief glance at a mid-century proposal that initiated a very different way of thinking about mind: the proposal by Turing -- one of the great minds of the 20th Century--that machines of a certain kind could exhibit intelligence. A story told in part in the recent movie, The Imitation Game. We then turn to some more traditional approaches to mind: Cartesianism, Behaviorism and Materialism. prereq: one course in philosophy or instr consent

PHIL 5760. Selected Topics in Philosophy. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Philosophical problems of contemporary interest. Topics specified in Class Schedule. prereq: 3xxx-5xxx course in phil or instr consent

PHIL 5993. Directed Studies. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: instr consent, dept consent, college consent

Physical Education (PE)

PE 1007. Beginning Swimming. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Introduction to basic aquatic safety, fundamentals of swimming and hydrodynamics. Principles of hydrodynamics and stroke mechanics; five basic strokes; basic rescue techniques with use of pool equipment; hydrotherapy for disabilities and other conditions, opportunities for competitive activities, lifetime enjoyment of aquatics.

PE 1012. Beginning Running. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamentals of running. Completing a 5K race. Benefits of running. Appropriate apparel/equipment. Principles of running. Injury prevention. Road racing rules. Nutrition, hydration.

PE 1014. Conditioning. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamentals of personal fitness. Principles of fitness; health and motor skill components of fitness; principles of training/conditioning programs; nutrition; weight control; common fitness injuries; motivation and consistency in fitness programs; stress management.

PE 1015. Weight Training. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Introduction to weight training. Basic aspects of weight training including exercise selection and technique, charting workouts, program design, nutritional considerations, and safety.

PE 1016. Posture and Individual Exercise. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Good posture techniques, individual exercises, fitness concepts, and mental techniques. Specific overall sound body and mind techniques to include flexibility exercises, cardiovascular fitness, resistance training, nutrition management, weight control, stress management, and self-thought.

PE 1029. Handball. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Hand and eye coordination, footwork in practice and game conditions, and skills and strategies of service and rally for the court sport handball (four-wall version). Novice to intermediate levels of play accommodated.

PE 1031. Sabre Fencing. (1 cr. ; Student Option No Audit; Every Fall)
Basic sabre techniques, movement, an overview of fencing as a recreational sport and an Olympic sport, and the history of fencing.

PE 1032. Badminton. (1 cr. ; Student Option No Audit; Periodic Fall & Spring)
Fundamentals including etiquette, terminology, game rules for singles and doubles, footwork, shot selection, and strategy.

PE 1033. Foil Fencing. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fending fundamentals, including basic foil techniques, movement, a general overview of fencing as a recreational sport and an Olympic sport, and the history of fencing.

PE 1034. Judo. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Basic skills for throwing, falling, grappling (matwork), choking, arm and neck techniques; contest judo from Jiu-Jitsu; fundamental rules and scoring of contests. Videotapes used for technique instruction and contest appreciation.

PE 1035. Karate. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Introduction to Traditional Japanese Shotokan Karate. Students learn to punch, block, strike, & kick with a focus on proper form, posture, & body mechanics. Students also learn a Kata (choreographed form), techniques with partners, & practical self-defense. Non-contact - no pads, hitting, or throwing.

PE 1036. Racquetball. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamentals of racquetball, including equipment; safety and etiquette; terminology; game rules of singles, doubles, and cutthroat; grips; basic strategies; serves and shots.

PE 1037. Squash Racquets. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Entry-level technique, basic equipment, international dimension courts, and fitness.

PE 1038. Beginning Tennis. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamental strokes, including forehands, backhands, volleys, lobs, overheads, and serves; introduction to doubles play; terminology, rules, and etiquette.

PE 1044. Self-Defense. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Physical, psychological, and de-escalation skills for acting in crisis situations. Distance, body language, and tone of voice are addressed. Physical skills include striking, kicking, shifting, blocking, releasing techniques, floor defenses, and applications to armed attackers and multiple attackers.

PE 1045. Rock Climbing. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Safety, knots, equipment, techniques, and anchor systems used in climbing. Course includes all necessary equipment. prereq: Good general health, no [neck or back] problems

PE 1046. Tae Kwon Do. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamentals of Tae Kwon Do. Principles of martial arts, body mechanics of Tae Kwon Do, practical self-defense.

PE 1048. Bowling. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamentals, including stance, approach and delivery, scoring, bowling terminology, and etiquette.

PE 1053. Ice Skating. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Basic turns, basic stops, balance techniques, and various other skills from both the forward and backward positions. Equipment, safety issues, ice skating terminology.

PE 1055. Golf. (1 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
Proper grip, stance, ball address, swing, club selection, psychological management, rules, and etiquette. Basic instruction in analyzing, assisting with, and coaching golf.

PE 1057. Beginning Skiing. (1 cr. ; Student Option No Audit; Every Spring)
Alpine skiing. How to stop, turn, and use lifts. Safety, etiquette, and purchase of equipment. Class held at Highland Hills ski area in Bloomington.

PE 1058. Snowboarding. (1 cr. ; Student Option No Audit; Every Spring)
Alpine snowboarding. Uses American Teaching System. Classes are split into nine skill levels, beginning through advanced. Held at Hyland Ski and Snowboard School in Bloomington. prereq: Good general health, injury free

PE 1065. Beginning Tumbling and Gymnastics. (1 cr. ; Student Option No Audit; Periodic Fall & Spring)
Rolls, handstands, cartwheels, extensions, handsprings, tucks (flips). Spotting techniques. Skills on bars, vault, and beam.

PE 1067. Basketball. (1 cr. ; Student Option No Audit; Every Fall & Spring)

Fundamental skills and rules of basketball, with emphasis on basic court movement and different offensive and defensive strategies.

PE 1071. Beginning Cricket. (1 cr. ; Student Option No Audit; Periodic Fall & Spring)
Fundamentals of Cricket. Laws of Cricket, bowling/batting techniques, competitive/ recreational Cricket opportunities.

PE 1072. Soccer. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Fundamentals of soccer including sporting behavior both on and off the field, game rules, soccer terminology, participation and competition drills, fundamental soccer skills, practical instruction in strategy.

PE 1074. Beginning Volleyball. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Basic skills, team play, rules, officiating, and strategy.

PE 1076. Flag Football. (1 cr. ; Student Option No Audit; Periodic Fall & Spring)
Introduction to flag football, techniques, field positions, rules/regulations. Students will participate in vigorous exercise activities including running, throwing, kicking, and catching.

PE 1077. Lacrosse. (1 cr. ; Student Option No Audit; Periodic Fall & Spring)
Introduction to lacrosse, techniques, field positions, rules, regulations. Students participate in vigorous exercise activities including running, throwing, catching, and stick handling.

PE 1137. Intermediate Squash. (1 cr. ; Student Option No Audit; Periodic Fall & Spring)
Stroke mechanics, shot placement, changing pace. Court movement/positioning. Fitness requirements, joint/muscle stresses. Weight training for squash. On-court etiquette. prereq: 1037 or instr consent

PE 1146. Intermediate Tae Kwan Do. (1 cr. ; Student Option No Audit; Periodic Fall)
Continuation of 1046. Focuses on Olympic-style intermediate skills/techniques. Self-defense techniques for men/women. prereq: 1046, previous Tae Kwon Do experience (World Tae Kwon Do Federation sanctioned), basic white Tae Kwon Do uniform

PE 1154. Figure Skating. (1 cr. ; Student Option No Audit; Periodic Spring)
Terminology, rules. Basic moves, jumps, spins. On-/off-ice assignments. prereq: 1053 or equiv or instr consent

PE 1205. Scuba and Skin Diving. (1 cr. ; Student Option No Audit; Every Fall & Spring)
Diving equipment, physics, physiology, decompression, emergencies, recreational dive planning, oceans, currents and aquatic life, snorkeling/SCUBA equipment usage, buoyancy control, entries, emergencies. prereq: Ability to swim 400 yds comfortably or instr consent

PE 1262. Marathon Training. (3 cr. ; Student Option No Audit; Every Spring)
Physical challenge achieved through physiological/psychological adaptation. Goal setting that fosters adaptation in many facets of life. Marathon history. prereq: No pre-existing medical condition that would prevent finishing a marathon, instr consent

PE 1720. Special Activities in Physical Education. (; 1-3 cr. [max 9 cr.] ; Student Option No Audit; Periodic Fall, Spring & Summer)
Activities or related opportunities not normally available through regular course offerings.

Physical Therapy (PT)

PT 1002. Orientation to Physical Therapy. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Introduction to the profession of physical therapy through lectures, discussions, patient presentations, clinic visit, videotapes, and exposure to treatment equipment.

Physics (PHYS)

PHYS 1001W. Energy and the Environment. (ENV,WI,PHYS; 4 cr. ; Student Option; Every Fall & Spring)
Fundamental principles governing physical world in context of energy/environment. Lab. prereq: 1 yr high school algebra

PHYS 1011. Physical World. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Fundamental laws and principles governing the physical world, discussed in the context in which encountered in modern science and technology. prereq: 1 yr high school algebra

PHYS 1021. Intro Phys. (5 cr. ; S-N only;)

PHYS 1101W. Introductory College Physics I. (PHYS,WI; 4 cr. ; Student Option; Every Fall & Spring)
Fundamental principles of physics in the context of everyday world. Use of kinematics/ dynamics principles and quantitative/qualitative problem solving techniques to understand natural phenomena. Lecture, recitation, lab. prereq: High school algebra, plane geometry, trigonometry; primarily for students interested in technical areas

PHYS 1102W. Introductory College Physics II. (PHYS,WI; 4 cr. ; Student Option; Every Spring)
Fundamental principles of physics in context of everyday world. Use of conservation principles and quantitative/qualitative problem solving techniques to understand natural phenomena. Lecture, recitation, lab. prereq: 1101W or 1107

PHYS 1107. Introductory Physics Online I. (PHYS; 4 cr. ; Student Option; Every Fall & Spring)
Principles of physics in context of everyday world. Use of kinematics/dynamics principles together with quantitative/qualitative problem solving techniques to understand natural phenomena. prereq: High school algebra, plane geometry, trigonometry

PHYS 1108. Introductory Physics Online II. (PHYS; 4 cr. ; Student Option; Every Fall & Spring)
Fundamental principles of physics in context of everyday world. Use of conservation principles and quantitative/qualitative problem solving techniques to understand natural phenomena. Lecture content, recitation, lab. prereq: 1101W or 1107; primarily for students interested in technical areas

PHYS 1181. Introductory College Physics I. (3 cr. ; S-N only; Every Fall & Spring)
Intended only to be used to recognize proficiency in material of PHYS 1101W. prereq: Proficiency in the material of PHYS 1101W

PHYS 1182. Introductory College Physics II. (3 cr. ; S-N only; Every Spring)
Intended only to be used to recognize proficiency in material of PHYS 1102W. prereq: Proficiency in the material of PHYS 1102W

PHYS 1201W. Introductory Physics for Biology and Pre-medicine I. (PHYS,WI; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Fundamental principles of physics. Description of motion, forces, conservation principles, structure of matter. Applications to mechanical systems, including fluids, waves, heat. Lab. prereq: [High school or college calculus], trigonometry, algebra

PHYS 1202W. Introductory Physics for Biology and Pre-medicine II. (PHYS,WI; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Fundamental principles of physics. Motion, forces, conservation principles, structure of matter. Applications to electromagnetic phenomena, including optics, atomic structure. Lab. prereq: 1201W

PHYS 1221. Introductory Physics for Life Science Majors I. (PHYS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
The class exposes the student to physical principles and concepts, demonstrates how these principles can be applied to quantitatively describe natural phenomena, and provides the student with an opportunity to perform hands-on experiments and measurements that model how physical knowledge is obtained. The living world exists in the physical universe, and a complete understanding of biological processes is impossible without a firm foundation in the basic physical principles to which all systems, living and inorganic, must adhere. The basic principles of classical mechanics, fluid mechanics, and oscillations and waves will be examined, with particular emphasis to their application in biological systems, using mathematical analysis at the level of basic calculus. prereq: High School or College Calculus

PHYS 1222. Introductory Physics for Life Science Majors II. (PHYS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This is the second course in the introductory physics sequence for life science majors. The class exposes the student to physical principles and concepts, demonstrates how these principles can be applied to quantitatively describe natural phenomena, and provides the student with an opportunity to perform hands-on experiments and measurements that model how physical knowledge is obtained. The fundamental principles of thermal physics,

electricity and magnetism, optics, and nuclear physics are considered. prereq: PHYS 1221 or equivalent

PHYS 1281. Introductory Physics for Biology and Pre-medicine I. (4 cr. ; S-N only; Every Fall, Spring & Summer)
Intended only to be used to recognize proficiency in material of PHYS 1201W. prereq: Proficiency in the material of PHYS1201W

PHYS 1282. Introductory Physics for Biology and Pre-medicine II. (4 cr. ; S-N only; Every Fall & Spring)
Intended only to be used to recognize proficiency in material of PHYS 1202W. prereq: Proficiency in the material of PHYS1202W

PHYS 1301W. Introductory Physics for Science and Engineering I. (PHYS,WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Use of fundamental principles to solve quantitative problems. Motion, forces, conservation principles, structure of matter. Applications to mechanical systems. prereq: concurrent registration is required (or allowed) in Math 1271 or concurrent registration is required (or allowed) in Math 1371 or concurrent registration is required (or allowed) in Math 1571

PHYS 1302W. Introductory Physics for Science and Engineering II. (PHYS,WI; 4 cr. ; Student Option; Every Fall & Spring)
Use of fundamental principles to solve quantitative problems. Motion, forces, conservation principles, fields, structure of matter. Applications to electromagnetic phenomena. prereq: 1301W, concurrent registration is required (or allowed) in Math 1272 or Math 1372 or Math 1572

PHYS 1381. Introductory Physics for Science and Engineering I. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Intended only to be used to recognize proficiency in material of PHYS 1301W. prereq: Proficiency in the material of PHYS1301W

PHYS 1382. Introductory Physics for Science and Engineering II. (3 cr. ; S-N only; Every Fall, Spring & Summer)
Intended only to be used to recognize proficiency in material of PHYS 1302W. prereq: Proficiency in the material of PHYS1302W

PHYS 1401V. Honors Physics I. (PHYS,WI; 4 cr. ; A-F only; Every Fall)
Comprehensive, calculus-level general physics. Emphasizes use of fundamental principles to solve quantitative problems. Description of motion, forces, conservation principles. Structure of matter, with applications to mechanical systems.

PHYS 1402V. Honors Physics II. (PHYS,WI; 4 cr. ; A-F only; Every Spring)
Fundamental principles to solve quantitative problems. Description of motion, forces, conservation principles, fields. Structure of matter, with applications to electro-magnetic phenomena. prereq: 1401V, honors student or permission of University Honors Program

PHYS 1901. Global Warming Solutions. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
In this seminar, we will consider various possible solutions to the current and future global warming problem. This is a topic of intense global importance. Topics will include efficiency and conservation, reduced carbon in electricity production and transportation, wind and solar power, nuclear power, policy changes, third world solutions, reforestation, and more.

PHYS 1906. What is Space Weather (and Why Should You Care)?. (; 2 cr. ; Student Option; Periodic Fall & Spring)
In this class, we will explore the way our sun changes over the eleven-year solar cycle and how this can affect events from airline travel, cell phone coverage, and power outages to beautiful aurora and manned spaceflight to Mars. We will also touch on space weather on other planets (including exoplanets) and the possible impact on development of life. If the space weather cooperates, we will try to observe the aurora and related phenomena including sunspots.

PHYS 1910W. What is Time?. (WI; 2 cr. ; Student Option; Every Spring)
The precise meaning and use of the concept of time has evoked serious study and debate among the most able of human thinkers for more than 2,000 years. In this seminar, we will review several of the current perspectives as well as some of this history of the concept of time from the points of view of philosophers, biologists, psychologists, and physicists.

PHYS 1911W. How Likely is Extraterrestrial Life?. (WI; 2 cr. ; A-F or Audit; Periodic Fall)
The goal of this course is to familiarize students with the main available scientific facts and arguments which bear on the question of the likelihood of extraterrestrial life. A second goal is to familiarize students with aspects of the various relevant disciplines early in their university careers when they may still be selecting a major. The third goal is to provide familiarity with information resources at the university, particularly through the library, as well as improved reasoning, writing, and speaking skills.

PHYS 2201. Introductory Thermodynamics and Statistical Physics. (; 4 cr. ; Student Option; Every Fall)
Thermodynamics and its underlying statistical nature. prereq: [1302W or 1402V or 1502V], [concurrent registration is required (or allowed) in MATH 1272 or MATH 1372 or MATH 1572H]

PHYS 2303. Physics III: Physics of Matter. (; 4 cr. ; Student Option; Every Spring)
Thermodynamics, mechanical/electromagnetic waves, optics, quantum theory. Applications of quantum nature of solids. prereq: 1302, [MATH 1272 or MATH 1372 or MATH 1572H], [MatSci or EE] student

PHYS 2311. Modern Physics. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Broad overview of physical concepts developed in twentieth century. Special relativity, wave-particle duality, Schrodinger equation, Bohr atom, hydrogen atom in wave mechanics, many-electron atoms, x-rays, nuclear structure, radioactivity, nuclear reactions, statistical physics. prereq: [1302 or 1402], Chem 1022, Math 2243

PHYS 2503. Physics III: Intro to Waves, Optics, and Special Relativity. (; 4 cr. ; Student Option; Every Fall)
Third semester of introductory physics. Mechanical/electromagnetic waves, optics, special relativity. prereq: 1302W, [MATH 1272 or MATH 1372 or MATH 1572H]

PHYS 2503H. Honors Physics III. (; 4 cr. ; A-F only; Every Fall)
The third semester of a calculus-based introductory physics sequence. Topics include: relativistic kinematics and dynamics, mechanical and electromagnetic waves, light, interference, diffraction, wave-particle duality and topics in modern physics. Course emphasizes the use of fundamental problems to solve quantitative problems. Intended primarily for those who have completed 1401V/1402V, although those students with outstanding performance in 1301W/1302W may be granted permission to enroll. prereq: 1402V or 1502V, honors student or permission of University Honors Program or instr consent

PHYS 2601. Quantum Physics. (; 4 cr. ; Student Option; Every Spring)
Introduction to quantum mechanics. Applications to atomic, molecular, condensed-matter, nuclear, elementary-particle, and statistical physics. Associated lab is 2605. prereq: [2503H or 2503], [concurrent registration is required (or allowed) in Math 2243 or Math 2373 or Math 2574H]

PHYS 3022. Introduction to Cosmology. (; 3 cr. ; Student Option; Spring Odd Year)
Large-scale structure and history of universe. Dark matter, cosmic microwave background. Newtonian/relativistic world models. Physics of early universe. Cosmological tests. prereq: 2601

PHYS 3041. Mathematical Methods for Physicists. (3 cr. ; Student Option; Every Spring)
This course introduces additional mathematical topics that physics majors need to properly handle upper division physics classes. prereq: PHYS 1302, MATH 2373 (or equivalent courses)

PHYS 3071W. Laboratory-Based Physics for Teachers. (PHYS,WI; 4 cr. ; Student Option; Every Fall & Spring)
Laboratory-based introductory physics. Topics selected to apply to elementary school curriculum: earth's motion, properties of matter, heat and temperature, kinematics, and electric current. prereq: College algebra; no credit for CSE students or students who have completed PHYS 1201/1202, PHYS 1301/1301, PHYS 1401/1402, or PHYS 1501/1502.

PHYS 3605W. Modern Physics Laboratory. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Laboratory experiments in atomic, solid state, and nuclear physics. Introduction to data analysis techniques as well as the communication of scientific results through maintaining a logbook and writing papers. Prerequisites: completion (or concurrent registration) in PHYS 2503 or 2503H.

PHYS 3993. Directed Studies. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed study in Physics in areas arranged by the student and a faculty member. prereq: instr consent, dept consent

PHYS 3994. Directed Research. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent, directed study in physics in areas arranged by the student and a faculty member. prereq: instr consent, dept consent

PHYS 4001. Analytical Mechanics. (; 4 cr. ; Student Option; Every Fall)
Analytic Newtonian mechanics. Mathematics beyond prerequisites developed as required. prereq: [2303 or 2601 or Chem 3501 or Chem 3502], two sems soph math

PHYS 4002. Electricity and Magnetism. (; 4 cr. ; Student Option; Every Spring)
Classical theory of electromagnetic fields using vector algebra and vector calculus. prereq: [2303 or 2601 or Chem 3501 or Chem 3502], two sems soph math

PHYS 4041. Computational Methods in the Physical Sciences. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Introduction to using computer programs to solve problems in physical sciences. Selected numerical methods, mapping problems onto computational algorithms. Arranged lab. prereq: Upper div or grad student or instr consent

PHYS 4051. Methods of Experimental Physics I. (5 cr. ; Student Option; Every Fall & Spring)
Contemporary experimental techniques. Introduction to modern analog and digital electronics from an experimental viewpoint. Use of computers for data acquisition and experimental control. Statistics of data analysis. prereq: PHYS 1302W, concurrent registration is required (or allowed) in PHYS 3605W or equiv lab experience or instr consent

PHYS 4052W. Methods of Experimental Physics II. (WI; 5 cr. ; Student Option; Every Fall & Spring)
Second semester of laboratory sequence. Contemporary experimental techniques illustrated by experiments with data analysis. Students design and execute an experimental project. Lectures on specialized topics of professional concern. prereq: PHYS 4051, PHYS 3605W

PHYS 4101. Quantum Mechanics. (; 4 cr. ; Student Option; Every Fall)
Mathematical techniques of quantum mechanics. Schrodinger Equation and simple applications. General structure of wave mechanics. Operator methods, perturbation theory, radiation from atoms. prereq: [2303 or 2601 or Chem 3502], two sems soph math

PHYS 4121W. History of 20th-Century Physics. (WI; 3 cr. ; Student Option; Periodic Spring)
The transition from classical to modern physics (relativity, quantum) and its architects (from Planck and Einstein to Heisenberg and Schr?dinger). The WWII bomb projects in the US and in Germany. Post-war developments (solid state, particle physics).

PHYS 4201. Statistical and Thermal Physics. (; 3 cr. ; Student Option; Every Fall)
Principles of thermodynamics and statistical mechanics. Selected applications such as kinetic theory, transport theory, and phase transitions. prereq: 2601

PHYS 4211. Introduction to Solid-State Physics. (; 3 cr. ; Student Option; Every Spring)
A modern presentation of the properties of solids. Topics include vibrational and electronic properties of solids; diffraction of waves in solids and electron band structure. Other possible topics include optical properties, magnetic phenomena, and superconductivity. prereq: 4101, 4201

PHYS 4303. Electrodynamics and Waves. (; 3 cr. ; Student Option; Every Fall & Spring)
Analytical mechanics. Electricity/magnetism, including mechanical/electromagnetic wave phenomena. Physical/geometrical optics. prereq: 4001, 4002

PHYS 4501. Experimental Project. (; 1-5 cr. ; Student Option; Every Fall, Spring & Summer)
Research project in physics area of contemporary interest. Project must be approved by faculty coordinator before registration. prereq: 4052, instr consent

PHYS 4511. Introduction to Nuclear and Particle Physics. (; 3 cr. ; Student Option; Every Spring)
Fundamental particles and Standard Model. Symmetries/quarks, models of nuclei, interactions between particles/nuclei, tests of conservation laws, fission/fusion. prereq: 4101

PHYS 4611. Introduction to Space Physics. (; 3 cr. ; Student Option; Fall Odd Year)
Dynamics of charged particles/plasmas in space. Physics of the Sun and solar wind. Solar/galactic cosmic rays. Interactions of solar wind with planetary magnetospheres. Dynamics of Magnetosphere. Formation of the aurora. Physics of radiation belts. prereq: [4001, 4002] or equiv or instr consent

PHYS 4621. Introduction to Plasma Physics. (; 3 cr. ; Student Option; Fall Odd Year)
Basic properties of collisionless, magnetized plasmas, single particle motion, plasmas as fluids, magnetohydrodynamics, waves in plasmas, equilibrium, instabilities, kinetic theory/shocks. prereq: [4001, 4002] or equiv or instr consent

PHYS 4623. Introduction to Modern Optics. (; 3 cr. ; Student Option; Every Fall)
Modern optics broadly defined as geometrical, physical, and quantum optics, including interference and diffraction, optical polarization, Fourier optics, cavity optics, optical propagation, optical coherence, lasers, optical detection, and optical instruments.

PHYS 4811. Introduction to General Relativity. (3 cr. ; Student Option; Spring Odd Year)
Introduction to general relativity for undergraduate students. The course will introduce basic concepts of differential geometry and use them to motivate Einstein's Equation. It will then solve Einstein's equation to study particle orbits, gravitational lensing of light, black holes, and gravitational waves. Brief introduction to cosmology and evolution of the universe will be included. prereq: PHYS 4001 and (PHYS 2503 or 2503H)

PHYS 4911. Introduction to Biopolymer Physics. (; 3 cr. ; Student Option; Every Spring)
Introduction to biological and soft condensed matter physics. Emphasizes physical ideas necessary to understand behavior of macromolecules and other biological materials. Elements of thermodynamics and statistical mechanics are presented as needed. prereq: [2303, 2403H, 2503] or Chem 3501 or instr consent

PHYS 4950H. Senior Thesis. (; 1-3 cr. [max 6 cr.] ; S-N or Audit; Every Fall & Spring)
Independent project with adviser. prereq: instr consent

PHYS 4960H. Honors Seminar. (; 1 cr. [max 2 cr.] ; Student Option No Audit; Every Fall & Spring)
Designed to prepare students for senior honors thesis projects and provide guidance in choice of future careers. prereq: Upper div honors, instr consent

PHYS 4993. Directed Studies. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed study in Physics in areas arranged by student and faculty member. prereq: instr consent

PHYS 4994. Directed Research. (; 1-5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent, directed study in physics in areas arranged by student and a faculty member. prereq: instr consent

PHYS 5001. Quantum Mechanics I. (; 4 cr. ; Student Option; Every Fall)
Schrodinger equation: bound state and scattering problems in one dimension. Spherically symmetric problems in three dimensions, angular momentum, and the hydrogen atom. Approximation methods for stationary states. Time-dependent perturbation theory. Operators and state vectors: general formalism of quantum theory. prereq: 4101 or equiv or instr consent

PHYS 5002. Quantum Mechanics II. (; 4 cr. ; Student Option; Every Spring)
Symmetry in quantum mechanics, space-time symmetries and the rotation group, Clebsch-Gordan coefficients and the Wigner-Eckart theorem. Scattering theory. Method of second quantization with elementary applications. Relativistic wave equations including Dirac equation. prereq: 5001 or equiv

PHYS 5011. Classical Physics I. (; 4 cr. ; Student Option; Every Fall)
Classical mechanics: Lagrangian/Hamiltonian mechanics, orbital dynamics, rigid body motion,

special relativity. prereq: 4001, 4002 or instr consent

PHYS 5012. Classical Physics II. (; 4 cr. ; Student Option; Every Spring)
Classical electromagnetism: electrostatics, magnetostatics, Maxwell's equations, electromagnetic waves, radiation, interaction of charged particles with matter. prereq: 5011 or instr consent

PHYS 5022. Relativity, Cosmology, and the Universe. (; 4 cr. ; Student Option; Periodic Fall)
Large-scale structure and history of universe. Introduction to Newtonian and relativistic world models. Physics of early universe. Cosmological tests. Formation of galaxies. prereq: 2601 or instr consent

PHYS 5041. Mathematical Methods for Physics. (; 4 cr. ; Student Option; Every Fall)
Survey of mathematical techniques needed in analysis of physical problems. Emphasizes analytical methods. prereq: 2601 or grad student

PHYS 5071. Physics for High School Teachers: Experimental Foundations and Historical Perspectives. (; 3 cr. ; Student Option; Periodic Fall)
In-depth examination of a conceptual theme in physics, its experimental foundations and historical perspectives. Kinematics and dynamics from Aristotle through Einstein; nature of charge and light; energy and thermodynamics; electricity, magnetism, and quantized fields; structure of matter. prereq: Gen physics, instr consent; no cr for physics grad or grad physics minor

PHYS 5072. Best Practices in College Physics Teaching. (; 1-3 cr. [max 5 cr.] ; Student Option; Every Fall & Spring)
Pedagogies for introductory physics classes. Topics from educational research/practice as applied to classroom.

PHYS 5081. Introduction to Biopolymer Physics. (; 3 cr. ; Student Option; Periodic Fall)
Introduction to biological and soft condensed matter physics. Emphasizes physical ideas necessary to understand behavior of macromolecules and other biological materials. prereq: working knowledge of [thermodynamics, statistical mechanics]

PHYS 5201. Thermal and Statistical Physics. (; 3 cr. ; A-F or Audit; Every Fall)
Equilibrium Statistical Mechanics. General Principles of Statistical Mechanics: Ensembles. Derivation of Thermodynamics from statistical principles. Classical Systems. Quantum Statistical Mechanics: Fundamentals. Photons. Ideal Fermi & Bose Gases. Non-ideal gases. Introduction to Phase Transitions. prereq: [[4101, 4201] or equiv] previous exposure to thermodynamics, introductory statistical physics

PHYS 5621. Introduction to Plasma Physics. (; 3 cr. ; Student Option; Periodic Fall)
Basic properties of collisionless, magnetized plasmas, single particle motion, plasmas as fluids, magnetohydrodynamics, waves in plasmas, equilibrium, instabilities, kinetic theory/shocks. prereq: CSE grad student, working knowledge of waves/electromagnetism

PHYS 5701. Solid-State Physics for Engineers and Scientists. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Crystal structure and binding; diffraction; phonons; thermal and dielectric properties of insulators; free electron model; band structure; semiconductors. prereq: Grad or advanced undergrad in physics or engineering or the sciences

PHYS 5950. Colloquium Seminar. (; 1 cr. ; S-N or Audit; Every Fall & Spring)
Colloquium of School of Physics and Astronomy. prereq: [Grad student or advanced undergrad in physics], dept consent

PHYS 5970. Physics Journal Club. (; 1-3 cr. ; S-N only; Every Fall & Spring)
Weekly student-led presentation, discussion, and critical analysis of important papers. prereq: 2601, 2605 or equiv; intended for 2nd-yr grad students in physics

PHYS 5980. Introduction to Research Seminar. (; 1 cr. [max 3 cr.] ; S-N or Audit; Every Fall & Spring)
Introduction to the research activities of the School of Physics and Astronomy. prereq: Grad or upper div phys major

PHYS 5993. Directed Studies. (; 1-5 cr. [max 15 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent, directed study in physics in areas arranged by the student and a faculty member. prereq: instr consent, dept consent

PHYS 5994. Directed Research. (; 1-5 cr. [max 15 cr.] ; Student Option; Every Fall, Spring & Summer)
Problems, experimental or theoretical, of special interest to students. Written reports. prereq: Jr, dept consent

Physiology (PHSL)

PHSL 2041. Physiology and Medicine. (2 cr. ; A-F only; Every Fall & Spring)
An understanding of Human Physiology is the basis of the practice of medicine. This course will provide an introduction and exploration of Physiology as it relates to the functions of the Human Body with special emphasis on the role of Physiology in Contemporary Medicine. The role of physiological research on advances in our understanding of health and disease will be emphasized. Students interested preparing for health science based careers and/or considering the Human Physiology major are encouraged to enroll.

PHSL 3050. Physiology From Cells to Systems. (; 3 cr. ; A-F only; Every Summer)
Basic physiology of human cells and organ systems, including nerve, muscle, cardiovascular, respiratory, renal, digestive, endocrine, metabolic and reproductive systems. Critical thinking about physiological concepts through active learning exercises involving analysis and manipulation of ideas. Apply concepts in basic research or clinical settings. prereq: BIOL 1009 or equiv [including eukaryotic cellular biology], [[CHEM 1021, CHEM 1022] or 1 yr of college-level chemistry]

PHSL 3051. Human Physiology. (; 4 cr. ; Student Option; Every Fall & Spring)
How major organ systems function (nerve, muscle, circulation, respiration, endocrine, renal, gastrointestinal, temperature regulation and energy metabolism). Three one-hour lectures, two-hour lab. prereq: [BIOL 1009 or 1 yr college biol], 1 yr college chem

PHSL 3061. Principles of Physiology. (; 4 cr. ; Student Option; Every Fall)
Human physiology with emphasis on quantitative aspects. Organ systems (circulation, respiration, gastrointestinal, renal, endocrine, muscle, peripheral and central nervous systems), cellular transport processes, and scaling in biology. prereq: 1 year college chem and physics and math through integral calculus

PHSL 3062W. Research Paper for Physiology Majors. (WI; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students write a research review on a physiological topic. Students select an area of focus within the discipline of physiology, and complete a literature review of basic science papers published in the past 10 years in their topic area. All students will work with a faculty advisor, who will assist the student in selecting their topic area, refining the focus of their literature review, and provide guidance on writing a scientific review article. prereq: concurrent registration is required (or allowed) in 3061, physiology major, 1 yr [college chem, physics], math through integral calculus

PHSL 3095. Problems in Physiology. (; 1-5 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Individualized study in physiology. Students address a selected problem in physiology through library or lab research, supervised by physiology faculty. prereq: concurrent registration is required (or allowed) in college physiology, instr consent

PHSL 3701. Physiology Laboratory. (; 2 cr. ; A-F or Audit; Every Fall)
Experiments in physiology. Emphasizes quantitative aspects, including analysis of organ systems. prereq: Physiology major

PHSL 4021. Advanced Physiology and Bioengineering: Bionic Human. (; 3 cr. ; A-F only; Every Spring)
Is "Iron Man" technology just around the corner? This course will examine how, and if, biomedical devices can address the needs of humans suffering from various pathologies and/or disabilities, or enhance human performance. Advanced discussion of the physiology of organs/organ systems and relevant devices past, present, and future. Emphasis will be on an in-depth understanding of normal physiology including cardiovascular, respiratory, renal, liver, motor, sensory, and pancreatic physiology. Classes will involve review of the physiology of organ systems,

design considerations for medical devices, and discussions of published papers about basic science and clinical trials. Classes will be a combination of content presentation and discussion.

PHSL 4031. Physiological Discussions: Contemporary Topics. (; 2 cr. ; A-F only; Every Spring)
Students read, critically evaluate, present, and discuss research in cellular and organ system physiology. Journal club setting led by faculty members. prereq: 3061 or 3063 or 5061 or instr consent

PHSL 4095H. Honors Problems in Physiology. (; 2-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Students pursue a selected topic in physiology through library or lab research supervised by physiology faculty. Prereq &3061, physiology honors candidate, approval of director of undergrad studies in physiology.

PHSL 4242. Professional Skills Development for Biomedical Scientists. (2 cr. ; A-F only; Spring Even Year)
Students will gain valuable experience in professional development for bio-medical science, applicable to academic, clinical, biotech, pharma, medical and other career paths. This course features essential professional skills development, including critical evaluation of the scientific literature, oral short presentations, development of research project specific aims, and development of individual WOW statements (aka the Bill Gates elevator pitch). Students will gain knowledge of grant mechanisms and on strategies and mechanics to writing a winning grant. Students will evaluate funded research projects, develop and write their own grant, (possibly based on their previous PHSL 3062W paper or other experiences) and perform peer review critiques of their submitted grants. There are no conventional tests in this class. prereq: PHSL 3062W is recommended.

PHSL 4702. Cell Physiology. (3 cr. ; A-F or Audit; Every Fall)
Critical cell functions. Regulation of pH, volume, intracellular electrolyte composition, calcium signaling, membrane potential dynamics, motility, aspects of intercellular communication. prereq: [3051 or 3061 or BIOL 3211], [CHEM 1022 or equiv], [MATH 1272 or equiv]

PHSL 4900. Advanced Physiology Teaching Laboratory. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall & Spring)
Teaching in undergrad physiology labs. Instructional sessions, hands-on teaching experiences. prereq: [3051 or [3061, 3071]], instr consent

PHSL 5061. Principles of Physiology for Biomedical Engineering. (; 4 cr. ; Student Option; Every Fall)
Human physiology with emphasis on quantitative aspects. Organ systems (circulation, respiration, renal, gastrointestinal, endocrine, muscle, central and peripheral nervous systems), cellular transport processes, and scaling in biology. prereq: Biomedical engineering grad, one yr college chem and physics and math through integral calculus

PHSL 5094. Research in Physiology. (; 1-5 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent lab research project in physiology, supervised by physiology faculty. prereq: instr consent

PHSL 5095. Problems in Physiology. (; 1-5 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Individualized study in physiology. Students address selected problem through library or lab research, supervised by physiology faculty. prereq: instr consent

PHSL 5096. Integrative Biology and Physiology Research Advances. (; 1 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Attend/participate in IBP Fall/Spring seminar series. Seminars given by faculty, invited speakers, students. Exposure to key topics. How to present seminars. prereq: instr consent

PHSL 5101. Human Physiology. (; 5 cr. ; Student Option; Every Spring)
Survey of human physiology: Cardiovascular, muscle, respiratory, gastrointestinal, nutrition, renal physiology. Integrative, systems approach. Emphasizes normal function. prereq: Grad student

PHSL 5115. Clinical Physiology I. (; 3 cr. ; A-F or Audit; Every Fall)
Cellular mechanisms, disease states and clinical applications of excitable tissues: cellular transport, neurophysiology, skeletal muscle physiology, cardiovascular physiology. prereq: instr consent

PHSL 5116. Clinical Physiology II. (; 3 cr. ; A-F or Audit; Every Spring)
Cellular mechanisms, disease states and clinical applications of metabolic systems: respiratory physiology, renal physiology, acid base physiology, metabolism, gastrointestinal physiology, endocrine physiology, physiology of pregnancy and labor. prereq: instr consent

PHSL 5197. Stress Physiology. (; 1 cr. ; A-F only; Every Spring)
Journal club format. Meets weekly to examine foundations of stress, historical progress, development of stress, modern stress physiology. Focus on stress-induced pathology with attention to cardiovascular, metabolic, neuroendocrine disorders. prereq: instr consent, grad student standing or physiology undergraduate major are recommended. Undergraduates are strongly encouraged to have taken 3061 or equivalent.

PHSL 5201. Computational Neuroscience I: Membranes and Channels. (; 3 cr. ; Student Option; Every Fall)
Neural excitation (ion channels, excitation models, effects of neural morphology) using UNIX workstations to simulate empirical results. Includes the Hodgkin-Huxley model, nonlinear dynamic systems analysis, voltage and ligand gated ion channels, ion transport theories, and impulse initiation and propagation. prereq: calculus through differential equations

PHSL 5350. Humans in Extreme Environments. (; 2 cr. ; Student Option; Every Spring)
Physiological systems, human factors, psychological reactions. Countermeasures to enhance performance and prevent negative health consequences. Readings, required paper, final exam. prereq: [3061 or equiv], instr consent

PHSL 5444. Muscle. (; 3 cr. ; Student Option; Every Spring)
Muscle membranes: structures, mechanisms, and physiological roles of channels/pumps. Muscle contraction: force generation by actin/myosin. prereq: 3061 or 3071 or 5061 or BioC 3021 or BioC 4331 or instr consent

PHSL 5510. Advanced Cardiac Physiology and Anatomy. (; 2-3 cr. ; Student Option; Every Spring)
Fundamental concepts, advanced topics related to clinical/biomedical cardiac physiology. Lectures, laboratories, workshops, anatomical dissections. Intense, one week course. prereq: instr consent

PHSL 5511. Advanced Neuromuscular Junction Physiology. (; 2-3 cr. [max 2 cr.] ; Student Option; Every Summer)
Fundamental concepts and advanced topics related to clinical/biomedical aspects of neuromuscular junction physiology. Lectures, laboratories, workshops, anatomical dissections. Intense, one week course. prereq: instr consent

PHSL 5525. Anatomy and Physiology of the Pelvis and Urinary System. (; 1-2 cr. ; A-F only; Every Spring)
Two-day intensive course. Pelvis, perineum, and urinary system with cadaveric dissection. Structure/function of pelvic and urinary organs, including common dysfunction and pathophysiology. Laboratory dissections, including kidneys, ureters, urinary bladder, pelvic viscera and perineum (male or female), pelvic floor, vascular and nervous structures. Grand rounds section. prereq: One undergrad anatomy course, one undergrad physiology course, instr consent

PHSL 5540. Advanced Exercise Medicine: Physiology and Bioenergetics. (; 1-2 cr. ; Student Option; Periodic Fall)
Three-day intensive course. Physiology, bioenergetics, nutrition, and sports medicine. Focuses on application of principles to treatment of diseases and functional deficits. Lectures, demonstrations, hands-on experiences in an exercise medicine facility. prereq: [Grad student or practicing health professional], instr consent

PHSL 5701. Physiology Laboratory. (; 1-2 cr. ; A-F or Audit; Every Fall & Spring)
Experiments in physiology. Emphasizes quantitative aspects, including analysis of organ systems. prereq: instr consent

PHSL 5702. Cell Physiology. (; 4 cr. ; A-F only; Every Fall)
Control mechanisms in maintaining homeostasis with respect to critical cell functions. Regulation of pH, volume, nutrient transport, intracellular electrolyte composition,

membrane potential. Aspects of intercellular communication. prereq: [Two semesters of physics/chemistry, calculus, one semester of systems-level physiology] or instr consent

Plant Pathology (PLPA)

PLPA 1005. Plants Get Sick Too. (BIOL; 4 cr. ; Student Option; Every Fall)
Biology of plant disease and plant-disease-causing organisms. Effects of plant disease on agriculture, human health/welfare, and the environment. Management/control of plant disease. Lecture, Internet, lab.

PLPA 1901. Antibiotics: Promise, Profits, and Pitfalls. (TS; 3 cr. ; A-F or Audit; Periodic Fall)
The discovery and availability of antibiotics has fundamentally changed the treatment of human infectious diseases. However, the broad effectiveness of antibiotics in reducing bacterial infections has led to overuse in medicine and agriculture. Consequences of overuse include widespread resistance to common antibiotics as well as antibiotic contamination in the environment. Antibiotic resistance currently represents a significant threat to treatment of some infectious bacteria, yet profit incentives and patenting regulations have limited investments by pharmaceutical companies in development of new antimicrobials. This course will explore the intriguing biology, chemistry, ecology, and evolutionary biology of antimicrobial warfare; the history of antibiotic discovery; the broad uses for antibiotics in medicine and agriculture; the costs, profits, and patenting issues associated with antibiotic development and production; the ethics of antibiotic regulation in developed and developing countries; and the future of antibiotic therapies in medicine and agriculture. prereq: freshman

PLPA 1902. Sequencing Plants, Pets, and Pathogens: The Genomics of Non-Humans. (; 3 cr. ; A-F only; Every Fall)
Sequencing DNA enables powerful new insights into the biology of plants, animals, and microbes. This freshman seminar explores the discoveries, applications, and implications of DNA sequencing technology. Along the way, we learn about genomics, DNA testing, domestication, genome engineering, archaic hominids, de-extinction, microbiomes, and sequence-based tracking of epidemics ? primarily through readings in the popular press, YouTube videos, in-class practicums, and debates. Nevin Young is a genomicist and professor of plant pathology. His lab studies the genomic basis of symbiosis between legume plants and nitrogen-fixing bacteria. In the classroom, he teaches courses in genomics and biotechnology, exploring their impacts on public policy and environmental debates.

PLPA 2001. Introductory Plant Pathology. (; 3 cr. ; Student Option; Every Spring)
Biology of the major groups of plant pathogens, symptoms and signs of plant disease, plant disease diagnosis, and principles of disease management. Lecture and laboratory. prereq: BIOL 1009 or equiv

PLPA 2003. Plague, Famine, and Beer: The Impact of Microscopic Organisms on Human Civilization. (HIS; 3 cr. ; Student Option; Every Fall)
Impacts that microbes have made on course of human civilization. Negative influences of major human/plant infectious disease. Positive benefits attained by harnessing power of microbes. Scale of history includes prehistoric to present day. Projected future impacts.

PLPA 3003. Diseases of Forest and Shade Trees. (; 3 cr. ; Student Option; Every Spring)
This course provides an overview of tree diseases in urban and forested areas. It covers diseases that have had a significant impact on society such as Dutch Elm disease; oak wilt, chestnut blight, white pine blister rust, sudden oak death and many others. It also provides an overview of important cankers, leaf diseases, wilts, rusts, root rots and other tree problems. Laboratory sessions enable students to get hands-on experience identifying disease agents, examining symptoms and learning appropriate control procedures. Emphasis will also be placed on ecological processes, biological and cultural control, and host-parasite interactions. This course should be of value to anyone interested in biological sciences, natural resources or ecology. It is a must for individuals that will have a career in natural resources but should also be useful to those interested in maintaining healthy trees at home, in urban areas or woodlands. Alumni of the University working with trees or woody ornamentals indicate this is one of the most important courses you can take as a student.

PLPA 3993. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

PLPA 4096. Professional Experience Program: Internship. (; 1-3 cr. [max 6 cr.] ; S-N or Audit; Every Fall & Spring)
Supervised practicum with professional experience in plant pathology and related industries including the Plant Disease and "Dial-U" clinics. Evaluative reports and consultations with faculty advisers and employers. prereq: COAFES undergrad, complete internship contract available in COAFES Career Services before registering; UC only

PLPA 5003. Diseases of Forest and Shade Trees. (; 3 cr. ; Student Option; Every Spring)
This course provides an overview of tree diseases in urban and forested areas. It covers diseases that have had a significant impact on society such as Dutch Elm disease; oak wilt, chestnut blight, white pine blister rust, sudden oak death and many others. It also provides an overview of important cankers, leaf diseases, wilts, rusts, root rots and other tree problems. Laboratory sessions enable students to get hands-on experience identifying disease agents, examining symptoms and learning appropriate control procedures. Emphasis will also be placed on ecological processes, biological and cultural control, and host-parasite interactions. This course should be of value to anyone interested in biological sciences, natural resources or ecology. It is a must or individuals that will have a career in natural resources but should also be useful to those interested in maintaining healthy trees at home, in urban areas or woodlands. Alumni of the University working with trees or woody ornamentals indicate this is one of the most important courses you can take as a student.

PLPA 5100. Topics in Plant Pathology. (; 1-4 cr. ; A-F or Audit; Every Fall & Spring)
Topics in Plant Pathology

PLPA 5103. Plant-Microbe Interactions. (3 cr. ; Student Option; Every Fall)
Genetics, physiology, molecular biology of plant-microbe interactions. Communication between plant/microbes, signal transduction, control of gene expression, symbiosis/parasitism, plant host response mechanisms, plant disease physiology. prereq: Intro course in plant pathology or molecular biology or equiv

PLPA 5202. Field Plant Pathology. (; 2 cr. ; Student Option; Every Summer)
Characteristics of a variety of plant diseases. Field trips to observe symptoms and effects of diseases, and to learn about prevention and control of diseases in field, forest, golf course, greenhouse, nursery, orchard, and urban environments.

PLPA 5203. Introduction to Fungal Biology. (; 3 cr. ; Student Option; Spring Odd Year)
Fungi are a critical component of the diversity and function of terrestrial ecosystems, affecting decomposition, plant nutrient uptake, and agricultural practices. Key components of fungal biology, including ecology, genetics, life cycles and diversity. Labs provide hands on experience with a diverse range of organisms. prereq: BIOL 1009 or equiv

PLPA 5300. Current Topics in Molecular Plant Pathology. (1 cr. [max 2 cr.] ; S-N only; Every Spring)
Interactive class. Students read, discuss, and critique publications in molecular plant pathology. Focus on articls, examining from different dimensions (underlying principles, experimental strategies, data analysis, impact on the broader discipline). prereq: instr consent

PLPA 5301. Large Scale Omic Data in Plant Biology. (; 3 cr. ; Student Option; Every Fall)
Introduction to large scale data in plant biology. Emphasizes model plants and important agricultural crops focusing on new approaches and technologies in the field. Fundamentals, acquisition, and analysis of high-throughput DNA and RNA sequencing, high-throughput plant phenotyping, functional and comparative genomics, epigenomics,

proteomics, metabolomics, and microbiomics. prereq: Intro course in genetics or instr consent

PLPA 5303. Data Visualization in Plant and Microbial Biology. (3 cr. [max 31 cr.] ; A-F only; Every Fall)
Data Visualization in Plant and Microbial Biology is a course for graduate and advanced undergraduate students interested in developing skills to visualize common datasets in plant and microbial research. Students will learn fundamentals of data visualization and reproducibility that are common approaches to present plant and microbial biological data. The topics to be covered in the course are not limited to but can include fundamentals of proper data visualization techniques, principles of manuscript figure design, differences between manuscript, poster, presentation, and communication data visualizations, and how to ensure that analysis and visualizations are reproducible. The class will consist of lectures, discussions, group activities, and lots of hands-on learning and analysis. prereq: Limited experience with R software is recommended, but not required.

PLPA 5444. Ecology, Epidemiology, and Evolutionary Biology of Plant-Microbe Interactions. (; 3 cr. ; A-F or Audit; Every Fall)
Concepts and recent research in the ecology, epidemiology, and evolutionary/coevolutionary biology of plant-microbe interactions spanning the range from parasitic to mutualistic in agricultural and natural habitats. prereq: Intro plant pathology or advanced biology coursework recommended

PLPA 5480. Principles of Plant Pathology. (; 3 cr. ; Student Option; Every Fall)
This course is intended for graduate students and undergraduate students in their third or fourth year that are interested in learning about principles of plant pathology, diseases that affect plants, microbiology and microbial and plant interactions. In this course students will learn principles of plant pathology through lectures and demonstrations and exercises in laboratory. Students will gain knowledge of mycology and select diseases caused by fungi within Ascomycota, Basidiomycota and the fungal-like Oomycota. Diseases caused by bacteria, nematodes, viruses, parasitic plants and abiotic damage are also examined. Lectures will include information concerning the history and importance of plant pathology, mycology, bacteriology, nematology, virology, infection process, genetics of host and microorganism interactions, epidemiology of diseases and disease control strategies. In the hands-on laboratory period the student will learn laboratory skills, gain experience using the microscope, work with microorganisms, learn diagnostic skills, and be able to recognize 30 plant diseases. prereq: BIOL 1009 or equiv

PLPA 5660. Plant Disease Resistance and Applications. (; 3 cr. ; A-F or Audit; Every Spring)
Fundamentals of disease resistance in plants and the genetics of host-parasite interactions as they relate to the sustainable control of plant diseases. Examples explored at the Mendelian, populational, and molecular level of organization. prereq: 2001, BIOL 4003

PLPA 5999. Special Topics in Plant Pathology. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Workshops on topics in plant pathology. See Class Schedule or department for current offerings.

Plant Science (PLSC)

PLSC 3002. Seed Science, Technology, and Society. (2 cr. ; Student Option; Every Fall)
Cultivate an understanding of seed and appreciation for seed with respect to agriculture. Focus of this course will be on agronomic crop seeds produced in the upper Midwest. prereq: HORT 1001 or BIOL 1009 or BIOL 2002 or consent of the instructor

PLSC 3005W. Introduction to Plant Physiology. (WI; 4 cr. ; Student Option; Every Spring)
Introduction to physiological basis for effects of environment on plant growth/development. How to produce optimal plant growth. Experimental technique, data analysis, scientific writing. Lecture, readings, lab. Prerequisites: Biol 1009 or Hort 1001 and BioC 3021 or Hort 2100 or BioC 2011

PLSC 3093. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

PLSC 3094. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

PLSC 3401. Plant Genetics and Breeding. (4 cr. ; Student Option; Every Spring)
Principles of plant genetics and environmental variation. Applications of genetics to crop evolution and breeding of self-pollinated, cross-pollinated, and asexually propagated crops. Investigation of hybridization, variation, and selection. Course is offered in two versions: Spring Odd with Eric Watkins is a lecture only course. Spring Even with Aaron Lorenz is a lecture-lab course.

Plant and Microbial Biology (PMB)

PMB 1212. Plant Biotechnology and Society. (TS; 3 cr. [max 6 cr.] ; Student Option; Every Spring)
Importance of plants to humans. How human interaction with plants has profoundly affected human societies, how human technology has changed our interaction with plants and affected the environment. Development of transgenic plants. Biofuels.

PMB 2022. General Botany. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to the biology of plants, algae, and fungi. Structure, growth, development, reproduction, diversity, and aspects of their ecology. Includes laboratory that focuses on structures in photosynthetic organisms and fungi as well as an introduction to physiology. prereq: One semester of college biology

PMB 3002. Plant Biology: Function. (; 2 cr. ; Student Option; Every Spring)
This course explores a range of plant physiological processes, including how plants make and use food; acquire and use minerals; transport water and nutrients; and regulate growth and development in response to hormones and environmental cues, such as light quality. prereq: [1002 or 1009 or 2003 or equiv], [CHEM 1011 or one semester chemistry with some organic content]

PMB 3005W. Plant Function Laboratory. (WI; 2 cr. ; Student Option; Every Spring)
Various plant processes at subcellular, organ, whole plant levels. Lab, recitation.

PMB 3007W. Plant, Algal, and Fungal Diversity and Adaptation. (WI; 4 cr. ; Student Option; Every Fall)
Evolution/Ecology/Diversity of plants, fungi, and algae. Lectures highlight phylogenetic diversity among and within multiple eukaryotic groups as well as adaptations and strategies for survival in varied environments. Includes both hands-on laboratory activities and writing focus. prereq: One semester college biology

PMB 3212. Fungi - A Kingdom of Their Own. (3 cr. ; A-F only; Every Spring)
No matter how you classify life on Earth, the fungi are in a Kingdom of their own. Latest estimates of the number of fungal species on our planet are between 2.2 and 3.8 million species. The diversity of single-celled and multi-cellular fungi is staggering, the result of divergence within a group of aquatic eukaryotes one billion years ago (? 500 million years). That divergence ultimately gave rise to animals and fungi, but the diversification within the fungal lineages is unrivaled. They can be found in aerobic and anaerobic environments. They are found on every Continent, recycling and reallocating vast amounts of nutrients in every Biome. They cause problems in crops but are also used to make food, with ancient processes such as fermentation and mushroom cultivation. For these reasons, mycology (study of fungi) is increasingly popular among students with interests as diverse as their fungal subjects. With the advent of high-throughput DNA sequencing to sample entire communities, we are seeing fungi in all of

these places where they were previously invisible. The fungal role in Earth's most critical processes is, right now, coming into light. It is an exciting time to study Kingdom Fungi. This course uses a format of lecture, discussion, and field trips to provide undergraduate and graduate students with a solid foundation in the fungi, primarily through an environmental lens. Undergraduate and graduate students will learn the basics of fungi in three core sections: 1) Phylogeny, taxonomy, and diagnostics (Who are the fungi?); 2) Morphology and physiology (How do fungi work?); 3) Ecology and Biotechnology (What are fungal implications and applications?). Within each core section, there will be one class period devoted to a discussion of the environment, the role of fungi, and the human dimensions of conservation and management. This discussion will be used by the class to vote for an environmental theme used to frame writing assignments, one per unit. Using this theme, all students will create a "Fungus in Focus" one-page "brief" focused on this environmental issue. This is a creative way to connect "dots" for students linking microbial processes to environment, in our case harnessing connections to fungi that often have visible characters (e.g. mushrooms) that make those connections easier for students. We will also go on two field trips, one to a mushroom cultivation facility, and one into the field in April, all depending on class size and weather. prereq: Introductory Biology course

PMB 3500. Special Topics in Plant Biology. (; 1-3 cr. ; Student Option; Every Spring)
Special Topics in Plant Biology - This is a topics shell

PMB 3701. PMB Seminar. (1 cr. ; S-N only; Every Fall & Spring)
Develop professional oral communication skills through the attendance and evaluation of biological science public seminars, the construction and presentation of a professional public seminar, and the introduction of a student seminar speaker. prereq: BIOL 3004/3004H.

PMB 3802. Field Microbiology at Itasca Biological Research Station. (3 cr. ; A-F only; Every Summer)
The microbial world is incredibly diverse: there are estimated to be more microbial cells on Earth than stars in the entire universe. Much of our understanding in microbiology derives from studies of pure cultures; organisms that can easily be grown in the lab. However, it is now clear that the vast majority of microorganisms in nearly every environment are not readily grown under laboratory conditions. We must therefore go to them. Field Microbiology will be a three-week intensive course where students will be taught methods of environmental microbiology in both lecture and laboratory format. The goal is to not only quantify who is in a given sample, but also to understand something about the conditions they live in (temperature, nutrient availability, etc.). Ecological data and microbial community structure will be generated using Oxford Nanopore sequencing technology ? a cutting edge method to generate large sequencing datasets in real-time. Analyses will be integrated with an in situ set of field instrumentation that includes an eddy covariance system for quantifying fluxes of methane and carbon dioxide from Lake Itasca and Elk Lake, as well as in-lake measurements of solar radiation, dissolved organic matter, pH, conductivity, temperature, dissolved oxygen and chlorophyll. A series of field trips will be scheduled to locations in and around Itasca State Park including Elk Lake, Arco Lake, Iron Springs Bog and Lake Alice Spring. Students will also develop an independent research project that will apply methods learned during the first 1.5 weeks of the course.

PMB 3812. Field Mycology. (3 cr. ; A-F only; Every Summer)
There is no better way to learn the fungi than hands-on, on "their terms" in nature and at the benchtop with specimens brought into the laboratory. This course harnesses the field and lab facilities at Itasca Biological Station and Laboratories in northern Minnesota to make this a seamless connection for hands-on, active learning. Students will come away with the knowledge to identify fungi in the field, to isolate them into pure culture, to save them in herbaria and ?living culture? collections, and to inoculate them back on solid, semi-solid, and liquid media to propagate, cultivate, and manage fungal strains for application. The latest estimates of the number of fungal species on our planet are between 2.2 and 3.8 million species. The diversity of single-celled and multi-cellular fungi is staggering, the result of divergence within a group of aquatic eukaryotes one billion years ago (? 500 million years). That divergence ultimately gave rise to animals and fungi, but the diversification within the fungal lineages is unrivaled. They can be found in aerobic and anaerobic environments. They are found on every Continent, recycling and reallocating vast amounts of nutrients in every Biome. They cause problems in crops but are also used to make food, with ancient processes such as fermentation and mushroom cultivation. For these reasons, mycology (study of fungi) is increasingly popular among students with interests as diverse as their fungal subjects. It is an exciting time to study Kingdom Fungi ? doing so along Biome transition zones like those at Itasca Biological Station and Labs, offers a life-changing and enriching experience to shape anyone studying microbiology. This course will be rooted firmly in the field, but with a format of lecture, discussion, and field trips to provide students with a solid foundation in the fungi. Students will learn the basics of fungi by going into the various habitats (coniferous forest, deciduous forests, old-growth, new-growth prairies, lakes, streams, and human-made environments such as mowed lawns).

PMB 4111. Microbial Physiology and Diversity. (; 3 cr. ; Student Option; Every Fall)
Structural/functional organization of bacteria/archaea. Energy metabolism utilizing light, inorganic/organic chemicals. Cell morphologies, roles/assembly of surface structures. Growth/survival mechanisms in various extreme environments. Adaptation to changing conditions by development of specialized cells/structures, altering metabolic patterns. prereq: MicB 3301 required; BioC 3021 or BioC 4331 recommended

PMB 4121. Microbial Ecology and Applied Microbiology. (; 3 cr. ; A-F or Audit; Every Spring)
Evolution/structure of microbial communities. Population interaction within ecosystems. Quantitative/habitat ecology. Biogeochemical cycling. Molecular microbial ecology, gene transfer in the environment. Molecular phylogeny of microorganisms. Application of microbes in agriculture. Production of commodity chemicals, drugs, and other high-value products. prereq: 3301

PMB 4131. Prokaryotic Genetics. (3 cr. ; Student Option; Every Spring)
Genetics is the application of abstractions to understand biological function. Much of our understanding at the molecular level of the natural world is derived from genetic work in model microbial systems like Escherichia coli, Salmonella, and Saccharomyces. Prokaryotic Genetics will focus on a molecular understanding of bacteria, with a smattering of archaea and phage genetics, covering both classic (transposons, mutant/suppressors) and modern (sequencing, metagenomics, synthetic biology) genetic approaches.

PMB 4321. Minnesota Flora. (3 cr. ; Student Option; Fall Even Year)
Practical skills for identifying plant species/surveying Minnesota vegetation to students of biology, environmental sciences, resource management, horticulture. Integrates botany, ecology, evolution, earth history, climate, global change in context of local plant communities. Labs/Saturday field trips explore Minnesota plants/plant communities. prereq: One semester college biology

PMB 4412. Plant Physiology. (3 cr. ; A-F only; Every Fall)
Plant Physiology is the study of how plant cells, tissues and whole organisms function. PMB 4412/5412 is a classic Plant Physiology course that covers plant water relations, mineral nutrition, membrane transport, photosynthesis, respiration, vascular function, metabolism, growth and development, and hormone responses. The physics underlying our understanding of these physiological systems will be addressed as much as possible. Classical and modern approaches to studying these physiological systems will be covered. There are no enforced prerequisites for this course. The following preparation is recommended: PMB 2022 General Botany or PMB 3007W Plant Algal and Fungal Diversity; General Chemistry and Introductory Physics.

PMB 4511. Flowering Plant Diversity. (; 3 cr. ; Student Option; Spring Odd Year)
Systematics of flowering plants of the world. Ecology, geography, origins, and evolution. Family characteristics. Floral structure, function, evolution. Pollination biology. Methods of phylogenetic reconstruction. Molecular evolution. Taxonomic terms. Methods of collection/identification. Lab. prereq: BIOL 1001 or 1009 or 1009H or 2002

PMB 4516W. Plant Cell Biology: Writing Intensive. (WI; 3 cr. ; Student Option; Periodic Fall)
Structure, function, and dynamic properties of plant cellular components. How cellular structures function and contribute to cell growth. Cell fate/development. Developing a clear/concise writing style for incisive criticism of scientific papers. prereq: [Biol 2022 or Biol 3002 or Biol 3007], [BioC 3021 or Biol 3021 or Biol 4003]

PMB 4601. Topics in Plant Biochemistry. (; 3 cr. ; A-F only; Every Spring)
Biochemical analysis of processes unique to photosynthetic organisms. Photosynthesis and carbon dioxide fixation. Synthesis of carbohydrates, lipids, and derivatives. Aromatic compounds such as lignin, other natural products. Functions of natural products. prereq: [BIOL 1002 or BIOL 1009 or BIOL 2003], CHEM 2301

PMB 4793W. Directed Studies: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. One main feature of this course is that the student will receive writing instruction and the written output of the course will be revised during the semester. The project needs to be explained in a research/directed studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

PMB 4794W. Directed Research: Writing Intensive. (WI; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Writing Intensive Directed Research is an individual-study, laboratory or field research experience in which the student is mentored directly by a faculty member. This course is intended for students who already have initiated a research project in the lab of the mentor and already have results. In this course the student will receive writing instruction. The written output usually is in the form of a scientific paper describing the results of the student's project. Written output of the course must be revised during the semester and a schedule for writing, assessment and revision needs to be in place at the beginning of the semester. The project needs to be explained in a Research/Directed Studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the Director of Undergraduate Studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, how writing instruction will take place, a timeline for when student writing will be handed in and how it will be assessed, methodology to be used by the student, and how assessment of learning will be conducted by the mentor. Additional oversight is established for this course - near the end of the semester the written output is submitted to the DUGS for the major. The DUGS is responsible to determine that the writing meets standards set by the CBS Education Policy Committee for quality of writing, appropriate citation of literature, well-constructed figures, tables, and legends (if present), appropriate use and interpretation of statistics (if present), conclusions that are supported by evidence, and well-formatted references. The DUGS can call for a final revision before a grade is given. This course is graded S/N and approval of the DUGS is required before a grade of S can be given by the faculty mentor. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

PMB 4993. Directed Studies. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Studies is an individual-study, literature-based investigation in which the student is mentored directly by a faculty member. The topic for the course needs to be explained in a research/directed studies contract and agreed on by both the student and faculty mentor. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793W, 4794W, 4993, 4994 counts towards CBS major requirements.

PMB 4994. Directed Research. (; 1-7 cr. ; S-N only; Every Fall, Spring & Summer)
Directed Research is an individual-study, laboratory, or field investigation course. The research topic needs to be agreed on by both the student and the faculty mentor and explained in a research/directed studies contract. The contract must be approved by the director of undergraduate studies (DUGS) for the major before the student is allowed to register. The contract includes a description of learning objectives for the course, methodology to be used, and how the assessment of learning will be conducted. prereq: department consent, instructor consent, no more than 7 credits of 4793, 4794, 4993W, 4994W counts towards CBS major requirements.

PMB 5111. Microbial Physiology and Diversity. (3 cr. ; Student Option; Every Fall)
Structural/functional organization of bacteria/archaea. Energy metabolism utilizing light, inorganic/organic chemicals. Cell morphologies, roles/assembly of surface structures. Growth/survival mechanisms in various extreme environments. Adaptation to changing conditions by development of specialized cells/structures, altering metabolic patterns.

PMB 5212. Fungi - A Kingdom of Their Own. (3 cr. ; Student Option No Audit; Every Spring)
No matter how you classify life on Earth, the fungi are in a Kingdom of their own. Latest estimates of the number of fungal species on our planet are between 2.2 and 3.8 million species. The diversity of single-celled and multi-cellular fungi is staggering, the result of divergence within a group of aquatic eukaryotes one billion years ago (? 500 million years). That divergence ultimately gave rise to animals and fungi, but the diversification within the fungal lineages is unrivaled. They can be found in aerobic and anaerobic environments. They are found on every Continent, recycling and reallocating vast amounts of nutrients in every Biome. They cause problems in crops but are also used to make food, with ancient processes such as fermentation and mushroom cultivation. For these reasons, mycology (study of fungi) is increasingly popular among students with interests as diverse as their fungal subjects. With the advent of high-throughput DNA sequencing to sample entire communities, we are seeing fungi in all of these places where they were previously invisible. The fungal role in Earth's most critical processes is, right now, coming into light. It is an exciting time to study Kingdom Fungi. This course uses a format of lecture, discussion, and field trips to provide undergraduate and graduate students with a solid foundation in the fungi, primarily through an environmental lens. Undergraduate and graduate students will learn the basics of fungi in three core sections: 1) Phylogeny, taxonomy, and diagnostics (Who are the fungi?); 2) Morphology and physiology (How do fungi work?); 3) Ecology and Biotechnology (What are fungal implications and applications?). Within each core section, there will be one class period devoted to a discussion of the environment, the role of fungi, and the human dimensions of conservation and management. This discussion will be used by the class to vote for an environmental theme used to frame writing assignments, one per unit. Using this theme, all students will create a Fungus in Focus one-page brief focused on this environmental issue. This is a creative way to connect dots for students linking microbial processes to the environment, in our case harnessing connections to fungi that often have visible characters (e.g. mushrooms) that make those connections easier for students. We will also go on two field trips, one to a mushroom

cultivation facility, and one into the field in April, all depending on class size and weather.

PMB 5412. Plant Physiology. (3 cr. ; Student Option; Every Fall)
Plant Physiology is the study of how plant cells, tissues and whole organisms function. PMB 4412/5412 is a classic Plant Physiology course that covers plant water relations, mineral nutrition, membrane transport, photosynthesis, respiration, vascular function, metabolism, growth and development, and hormone responses. The physics underlying our understanding of these physiological systems will be addressed as much as possible. Classical and modern approaches to studying these physiological systems will be covered. There are no enforced prerequisites for this course. The following preparation is recommended: PMB 2022 General Botany or PMB 3007W Plant Algal and Fungal Diversity; General Chemistry and Introductory Physics.

PMB 5500. Special Topics in Plant Biology. (; 1-3 cr. ; Student Option; Every Spring)
Topics Shell

PMB 5516. Plant Cell Biology. (; 3 cr. ; Student Option; Periodic Fall)
Structure, function, and dynamic properties of plant cellular components such as organelles, cytoskeleton, and cell wall. How cellular structures are assembled, how it contributes to cell growth/division. Cell fate/development. Responses to hormones and external signals. prereq: [Biol 2022 or Biol 3007 or Biol 3022], [Biol 3021 or BioC 3021 or Biol 4003]

PMB 5601. Topics in Plant Biochemistry. (; 3 cr. ; Student Option; Every Spring)
Biochemical analysis of processes unique to photosynthetic organisms. Photosynthesis and carbon dioxide fixation. Synthesis of carbohydrates, lipids, and derivatives. Aromatic compounds such as lignin, other natural products. Functions of natural products. prereq: [BIOL 1002 or BIOL 1009 or BIOL 2003], CHEM 2301

PMB 5802. Field Microbiology at Itasca Biological Research Station. (3 cr. ; A-F only; Every Summer)
The microbial world is incredibly diverse: there are estimated to be more microbial cells on Earth than stars in the entire universe. Much of our understanding in microbiology derives from studies of pure cultures; organisms that can easily be grown in the lab. However, it is now clear that the vast majority of microorganisms in nearly every environment are not readily grown under laboratory conditions. We must, therefore, go to them. Field Microbiology will be a three-week intensive course where students will be taught methods of environmental microbiology in both lecture and laboratory format. The goal is to not only quantify who is in a given sample but also to understand something about the conditions they live in (temperature, nutrient availability, etc.). Ecological data and microbial community structure will be generated using Oxford Nanopore sequencing technology - a cutting edge method to generate large sequencing datasets in real-time. Analyses will be integrated with an in situ set of field instrumentation that includes an eddy covariance system for quantifying fluxes of methane and carbon dioxide from Lake Itasca and Elk Lake, as well as in-lake measurements of solar radiation, dissolved organic matter, pH, conductivity, temperature, dissolved oxygen and chlorophyll. A series of field trips will be scheduled to locations in and around Itasca State Park including Elk Lake, Arco Lake, Iron Springs Bog and Lake Alice Spring. Students will also develop an independent research project that will apply methods learned during the first 1.5 weeks of the course.

PMB 5812. Field Mycology. (3 cr. ; A-F only; Every Spring & Summer)
There is no better way to learn the fungi than hands-on, on "their terms" in nature and at the benchtop with specimens brought into the laboratory. This course harnesses the field and lab facilities at Itasca Biological Station and Laboratories in northern Minnesota to make this a seamless connection for hands-on, active learning. Students will come away with the knowledge to identify fungi in the field, to isolate them into pure culture, to save them in herbaria and "living culture" collections, and to inoculate them back on solid, semi-solid, and liquid media to propagate, cultivate, and manage fungal strains for application. The latest estimates of the number of fungal species on our planet are between 2.2 and 3.8 million species. The diversity of single-celled and multi-cellular fungi is staggering, the result of divergence within a group of aquatic eukaryotes one billion years ago (? 500 million years). That divergence ultimately gave rise to animals and fungi, but the diversification within the fungal lineages is unrivaled. They can be found in aerobic and anaerobic environments. They are found on every Continent, recycling and reallocating vast amounts of nutrients in every Biome. They cause problems in crops but are also used to make food, with ancient processes such as fermentation and mushroom cultivation. For these reasons, mycology (study of fungi) is increasingly popular among students with interests as diverse as their fungal subjects. It is an exciting time to study Kingdom Fungi?doing so along Biome transition zones like those at Itasca Biological Station and Labs, offers a life-changing and enriching experience to shape anyone studying microbiology. This course will be rooted firmly in the field, but with a format of lecture, discussion, and field trips to provide students with a solid foundation in the fungi. Students will learn the basics of fungi by going into the various habitats (coniferous forest, deciduous forests, old-growth, new-growth prairies, lakes, streams, and human-made environments such as mowed lawns).

PMB 5960. Special Topics. (; 1-3 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics vary, see Class Schedule.

Political Science (POL)

POL 1001. American Democracy in a Changing World. (SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is intended to introduce students to the expressed hopes of the American people for their government and to the institutions and processes that have been created and recreated to achieve these hopes. The course is designed to help students understand what liberal education is by engaging in the study of American politics as a fundamentally critical and creative enterprise, and by grappling with the most complex and challenging problems of political life, such as the sources of political equality and inequality, and the tension between individual aspirations and political control. Questions of power and choice, opportunity and discrimination, freedom and restrictions on freedom are fundamental to the historical development of and current controversies within the American political system, and we will attend to all of these. We will explore topics including the ideas underlying the nation?s founding and its constitutional foundations; civil rights and civil liberties; the role of the United States in an increasingly globalized world; the structure and function of American political institutions; and the behavior of American citizens in the political process. In addition, we will learn to think and communicate like political scientists. We will read primary documents, such as the Federalist papers, engage with scholarly arguments about the way the American political system works, and critically evaluate critiques of the American political system that have been offered from a variety of perspectives. By the end of the semester students should have a basic understanding of the structure and function of American government as well as an increased ability to critically reflect on the degree to which our institutions, processes, and citizens live up to the expectations placed on them. Students will be able to identify, define, and solve problems and to locate and critically evaluate information. Students will have mastered a body of knowledge and a mode of inquiry. This course fulfills the liberal education requirements for the Social Sciences Core.

POL 1001H. Honors Course: American Democracy in a Changing World. (SOCS; 4 cr. ; A-F only; Every Fall & Spring)
Introduction to politics/government in the United States. Constitutional origins/ development, major institutions, parties, interest groups, elections, participation, public opinion. Ways of explaining politics, nature of political science. Emphasizes recent trends.

POL 1019. Indigenous Peoples in Global Perspective. (GP; 3 cr. ; A-F or Audit; Every Fall & Spring)
Colonial experiences of selected indigenous peoples in Americas, Euroasia, Pacific Rim.

POL 1025. Global Politics. (GP,SOCS; 3 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Global politics is complex, fast-paced, and often confusing. Seeking to reveal the deeper processes at work in the international system, this introductory course explores both the enduring challenges of international politics as well as more recent transformative trends?

What has changed and what has stayed the same. It introduces theoretical traditions, but the course's focus is on making sense of real-world problems, both today and in the past. Why and when do states go to war and use military force? Why do they sign international agreements and treaties, on matters from arms control to investment? What effect does international trade have on the distribution of global wealth, and why do barriers to trade arise? Why has human rights emerged as a central problem in world politics? Why has our world become an increasingly legalized and regulated space? And what difference does it make? What good are nuclear weapons? Why do some turn to terrorism to advance their political agenda? Does foreign aid make the world a better place? How can we reduce global inequality? What are the prospects for international cooperation to address climate change? These are among the pressing real-world questions that this course in Global Politics will address? And that it will give you the tools to answer, though particular instructors will naturally choose to emphasize different topics and questions. But the course will also highlight how our answers to these questions are changing along with the deep power structures of global politics-as US dominance wanes and others, most notably China, rise; as core ideas and discourses underpinning the international system, such as sovereignty, come under assault; and as institutions, such as those governing international law, thicken. Global Politics is an essential guide to our increasingly globalized world.

POL 1025H. Honors: Global Politics. (GP,SOCS; 4 cr. ; A-F or Audit; Every Fall & Spring)
Introduction to international relations/issues in contemporary world affairs. War, peace, nuclear proliferation. Politics of humanitarian intervention. Global monetary/trading systems. Activities of international institutions/non-governmental organizations. prereq: Honors student

POL 1026. U.S. Foreign Policy. (; 3 cr. ; Student Option; Every Fall & Spring)
The United States is the most powerful country in the world. This makes the question of what the role in the U.S. is in the world and how the United States interacts with other countries, international organizations, and other actors in international politics a question of real importance. US foreign policy will play a crucial role in determining the world we live in four, ten, and fifty years time. As a result, we should all try to better understand how the United States behaves in international politics, why it behaves in that way, how it should behave, and how it has behaved in the past. These are the questions that this class tackles. For example, we'll ask: why does the United States play such an active role in world politics? Might this change in the future and how has US foreign policy varied in the past? What do past conflicts in which the United States has been involved tell us about current U.S. foreign policy? Why is the United States so often at war despite being so militarily secure? Does the rise of China pose a threat to the United States and if so, what should the United States do about it? How serious is the threat of cyber war? Why does the United States care so much about stopping other countries from getting nuclear weapons?

POL 1054. Politics Around the World. (GP,SOCS; 3 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
This course is an introduction to the study of politics in different countries around the world. It focuses on domestic politics within countries, as opposed to a course in international relations, which focuses on relations between countries. Some of the questions we tackle include: Why are some countries prone to violent conflict while others remain peaceful? Why do some countries grow rich while others remain poor? Why does democracy emerge in some countries, while dictators hold onto power elsewhere? How do attitudes about gender and sexuality influence politics? Do particular religions, or the strength of religious faith, strengthen or weaken democracy? The readings and assignments help you make sense of the complexity of world politics - to sift through and distill the avalanche of information available and learn how to develop your own arguments about pertinent global issues. Upon completion of this course you will be able to understand and provide examples of 1) the difference between strong and weak states; 2) the distinctions between democratic and non-democratic forms of government; 3) the various ways democracies are governed; 4) arguments explaining the origin of democracy and the persistence of non-democracy; 5) the significance of different forms of political identity such as ethnicity, religion, and gender; 6) why some countries are rich while others remain poor; and 7) why some countries tax and spend more than others. Assignments seek to develop your skills at developing arguments through logic and evidence and to give you the ability to distinguish between a persuasive argument about politics and simply stating an opinion.

POL 1201. Political Ideas. (CIV,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course serves as an introduction to the study of political theory. Political theory analyzes the meaning and significance of fundamental concepts in politics. Starting from such basic concerns as the nature of politics, humans, power and justice, political theorists explore how these basic starting assumptions organize the norms, practices, and institutions of political and social order. To explore these topics, the field turns to key texts, as well as to political and social events and other media (film, historical documents, etc.). In this introductory course, students will investigate some of the basic texts in political theory, with the goal of learning how to read texts more analytically and to address fundamental questions in political theory. Among the topics that might be the nature of justice and injustice, political obligation and civil disobedience, democracy and other forms of governance. Students who complete this course will understand the deep issues about the nature of politics, will have learned to read and to analyze complex texts. They will also have had the opportunity to reflect upon their own ethical engagement in political life and upon the ways in which historically, political ideas change.

POL 1911. Dictatorship and Violence in Central Asia and Afghanistan. (; 3 cr. ; A-F only; Periodic Fall)
This course is an introduction to Central Asia, a region of the world that has layers of history, culture, and politics, that extend back to the time of Alexander the Great's conquest, Islamicization by the Arabs, Tamerlane's empire, and the Great Game of the 19th century. Our focus will mainly be on the twentieth century to the present, a period of invasion and control by the Soviet Union, then independence and a 30 year struggle to establish independent states and new forms of political power. Otherwise known as the "stans" (the land of) - this region includes the land of the Kyrgyz, Kazakhs, Uzbeks, Turkmen, Tajiks, and Afghans. We will also discuss Azerbaijan, a Turkic post-Soviet republic in the Caucasus that is a neighbor to the Central Asian region. We will focus on the role of ethnic, religious, and national identities in Soviet and post-Soviet politics. We will explore their history, and especially the legacy of communism for the present day. We will particularly address the problems of the post-Soviet era, including political transition to new regimes, the struggle by some for democracy, human rights issues, the challenges of economic reform, environmental catastrophes, ethnic conflict, civil war, and the growth of radical Islamist movements. We will consider US policy in the region, and how it has positively or negatively affected political developments.

POL 3065. Political Engagement Careers: Planning and Preparing For Your Future. (CIV; 3 cr. ; Student Option; Every Spring)
Are you interested in pursuing a career in public service? Do you plan to run for office in the future, or work in a government agency (such as the State Department or the FBI or the MN DNR), or become a professional campaign manager or lobbyist, or work as an issue activist on a cause important to you? Would you like to learn more about the variety of public service careers open to a college graduate? Do you wonder what motivates people to pursue careers in politics, public administration, and community service, and how these motivations vary across career fields? Would you like to explore some options for future internship or service learning while at the University? Then this course is for you! This course is the Political Science Department's introduction to careers in political and civic engagement. Through readings focused on theories about and case studies of political engagement, and on the ethics of politics and public service, numerous guest speakers with extensive experience as public service professionals, and a discussion-oriented class format, we will explore the meaning of public service and the main types of public service careers that you could pursue. We will think about the virtues and challenges associated

with doing public service work, and how these differ across different types of jobs and venues for serving the public. Finally, you will acquire practical knowledge and skills related to the search for public service work opportunities, including how to write a resume and cover letter, how to conduct an informational interview, networking, and the job search and application process. Intended primarily for first- and second-year undergraduates, but open to students of any major at any point in their undergraduate program.

POL 3080. Internship in Politics or Government. (; 3-13 cr. [max 15 cr.] ; A-F only; Every Fall, Spring & Summer)
Students search for and arrange an internship with an organization or office working in government or politics, and then complete academic coursework in association with their internship. prereq: instr consent, dept consent

POL 3085. Quantitative Analysis in Political Science. (MATH; 4 cr. ; A-F or Audit; Every Fall & Spring)
POL 3085 teaches students how to study politics scientifically and introduces them to how to use quantitative analysis to answer political questions. The first part of the class covers how to formulate a theory (a possible answer to a question), specify testable hypotheses (what you would see if the theory is correct or incorrect), and set up a research design to test those hypotheses. In the second part of the class, we cover quantitative data analysis, beginning from preliminary statistical analysis to multivariate linear regression. There is no mathematical or statistical background required for this course. By the end of the class, students should be able to ask and answer political questions using quantitative data and fluently evaluate statistical analyses of political phenomena in the media and many academic articles.

POL 3085H. Honors Course: Quantitative Analysis in Political Science. (MATH; 4 cr. ; A-F only; Every Fall & Spring)
POL 3085 teaches students how to study politics scientifically and introduces them to how to use quantitative analysis to answer political questions. The first part of the class covers how to formulate a theory (a possible answer to a question), specify testable hypotheses (what you would see if the theory is correct or incorrect), and set up a research design to test those hypotheses. In the second part of the class, we cover quantitative data analysis, beginning from preliminary statistical analysis to multivariate linear regression. There is no mathematical or statistical background required for this course. By the end of the class, students should be able to ask and answer political questions using quantitative data and fluently evaluate statistical analyses of political phenomena in the media and many academic articles. prereq: Honors student

POL 3108H. Honors Tutorial: Thesis Preparation and Political Science Inquiry. (; 3 cr. ; A-F only; Every Spring)
In this course, students will improve their research skills in preparation to write their senior theses. Students will enter with a few ideas for topics about which they might like to write their theses. They will leave the class with a clear and tractable research question, a literature review that describes how this question fits in with the existing scholarly literature, and a research design that will enable them to answer the question. Along the way, they will advance their understanding of what constitutes political science research and how to conduct political science research. Students will be graded on the basis of drafts of their annotated bibliography, literature review and research design, a class presentation of the ?front half? of their senior thesis, and class participation including short weekly assignments. Students are expected to keep up with the reading and, most importantly, to begin to conduct their own independent research. prereq: Pol sci major, honors

POL 3225. American Political Thought. (CIV; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course provides an introduction to several key periods and some of the leading concepts and debates in American political thought. It might also focus on a broader theme such as: conceptions of destiny, mission, and exceptionalism; arguments over economic development and inequality; or debates over government and corporate power. The course will begin with Puritan religious and political thought, tracing its secularization over time. Considerable attention will be paid to the ideas behind the Declaration of Independence and the Constitution, such as the social contract and the right of resistance to civil authority, civic republicanism, and the founders? new science of politics and government. The course will consider some if not all of the following: debates over slavery and emancipation, women?s rights, the rise of imperialism and nationalism, race and racism, and the rise of rule by public and private bureaucratic organizations, and the consequences of these developments for the possibility of continued individual liberty, equality, and justice. This course requires considerable reading of difficult texts. The ultimate goal of this course is for students to gain a deeper understanding of American political thought as a product of the country?s ever-evolving political discourse. prereq: Suggested prerequisite POL 1201

POL 3235W. Democracy and Citizenship. (CIV,WI; 3 cr. ; Student Option; Every Fall & Spring)
This course considers the nature of contemporary democracy and the role that members of the political community do, can, and should play. While approaches in teaching the class vary, students can expect to read historical and contemporary texts, see films and videos, to approach questions about the nature of democracy, justifications for democracy, and challenges faced by contemporary democracy. Topics will include such questions as the role of civil society in democratic life, deliberative democracy, as well as questions about how members of political communities can best participate in democratic life. Students will write a longer essay that allows them to demonstrate their capacities to understand and explain complex ideas and to make a theoretically compelling argument, using appropriate supporting evidence. prereq: Suggested prerequisite 1201

POL 3251W. Power, Virtue, and Vice: Ancient and Early Modern Political Theory. (WI; 3 cr. ; Student Option; Periodic Fall)
Key concepts of contemporary political life such as ?democracy?, ?tyranny?, ?authority?? and indeed ?politics? itself? derive from ancient sources. This course offers students an opportunity to return to the foundations of this vocabulary by delving into work by such major thinkers as Plato, Aristotle, Augustine, Aquinas, and Machiavelli. Lectures and discussion shall consider the endurance of certain basic questions of political life, such as: What is justice? What is the best regime? What is the relationship between human nature and political order? Can politics be virtuous and, if so, in what way? The course will also consider the radically diverse responses to these essential questions through examination of a wide range of historical periods and the unique terms of political order each offered. Previous iterations of the course have included examination of the Classical Greek city-state system and its fragile experiments with democracy; the rise and fall of the Roman empire; the establishment of Western Christendom; the Renaissance, so-called ? discovery? of the New World, and dawn of the modern era. Students will gain a glimpse into worlds preoccupied by matters of truth, virtue and nobility, but also widely populated by slavery, imperialism, violence, and religious strife. In this way, the study of ancient theory is intended to serve as both supplement and challenge to the terms of contemporary political life.

POL 3252W. Revolution, Democracy, and Empire: Modern Political Thought. (AH,WI,CIV; 3 cr. ; Student Option; Spring Even Year)
From the seventeenth through the nineteenth centuries, Europe and its colonies were wracked by large scale, sweeping changes: from the violent emergence of the sovereign state, to intense religious conflict, to geographic expansions at once transformative and brutal in search of new economic markets. These changes posed extraordinary challenges to usual ways of conceiving of political order and governance. Our course this semester will read these changes through three key concepts ? revolution, democracy, and empire. Class discussion will seek to understand different meanings of these concepts, their political stakes, and ways of knowing how to move between political ideals and historical examples. Students will read a range of materials ? from primary historical sources, to philosophic texts, political pamphlets and treatises, and travel journals ? so as to study the effects on both the European context and beyond. prereq: Suggested prerequisite 1201

POL 3265. Ideas and Protest in French Postwar Thought. (AH,CIV; 3 cr. ; Student Option; Every Fall & Spring)
France witnessed a number of extraordinary events in the 20th century: the carnage and

trauma of World Wars I and II; the Vichy regime?s collaboration with German Nazis; the general strike and student protests of the 1960s; the tensions prompted by anti-colonialism and later decolonization in North Africa; and the challenges of post-colonialism and racial politics. This course will examine these events, the political and ethical challenges they raised, and the intellectuals who shaped the ensuing public debates. It will draw on historical documents, cultural media (e.g. posters, art, film), and philosophical texts to explore contemporary France in its century of politics and protest. Thinkers range from film-maker Gillo Pontecorvo, to philosopher-playwright Jean-Paul Sartre, to philosopher Michel Foucault.

POL 3272. What Makes Political Community?. (CIV; 3 cr. ; Student Option; Periodic Fall & Spring)
We will explore different ways to think political community. Many contemporary political challenges are not just thorny problems but transform the very institutions, engagements, and concepts through which we understand what the activity of politics is and might be. Other societies and thinkers have faced drastically new challenges to their politics. So, we propose a course that would explore how political actors make and remake community. Our first unit, Polis and Empire, turns to the ancient world to reexamine the scope of politics, as it experimented with small city-states and large empires. Second, Colonial Encounters will analyze the movements of ideas, trades, and people back and forth across the Atlantic. Third, Revolution Reimagined treats incendiary moments of cultural and political contact. This course speaks to humanist concerns of how humans forge meanings and communities even from conditions of injustice and inequality.

POL 3306. Presidential Leadership and American Democracy. (; 3 cr. ; Student Option; Spring Odd Year)
To most Americans?if not most human beings? the President of the United States is probably the most powerful person on the planet. This course examines how, why, and whether that is the case. What does the US President do, and why? Why is so much power entrusted to just one person? Students will critically analyze these questions and synthesize answers by evaluating the history, evolution, and current state of the "highest office in the land."

POL 3308. Congressional Politics and Institutions. (SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Origin/development of U.S. congressional institutions, parties, committees, leaders, lobbying/elections, and relations between Congress/executive branch. Relationship of campaigning/governing, nature of representation, biases of institutional arrangements.

POL 3309. U.S. Supreme Court Decision-Making, Process, and Politics. (; 3 cr. ; Student Option; Every Fall & Spring)
The principal purpose of this course is to introduce you to judicial politics and decision-making of the U.S. Supreme Court. Specifically, we will examine theoretical issues regarding judicial process and politics. Unlike constitutional law and civil liberties classes, this course does not study legal doctrine. Rather, it examines political aspects of the legal system with an emphasis on the social scientific literature about how the U.S. Supreme Court functions. Thus, we will cover nominations of justices, decision making models, and how justices interact with one another and the political world beyond the ivory tower. Recommended prerequisite: POL 1001

POL 3310. Topics in American Politics. (; 3 cr. [max 15 cr.] ; Student Option; Every Fall, Spring & Summer)
Topic in American politics, as specified in Class Schedule.

POL 3311. Law and Justice: The View From Hollywood. (3 cr. ; Student Option; Every Summer)
Politics and the law have played major thematic roles in American films. This course analyzes eight films that focus on justice, the law, and the legal system, to see what they tell us about political and legal culture, and what messages (if any) they have for contemporary politics. To that end, we will read about, watch, talk about, and write about films. Mostly we will be focusing on questions about the relationship between law and justice, the practice of law, and the role of courts and trials in a political system; however, many other issues will arise in the course of these discussions? race/class/gender and the law, legal ethics, legal education, the adversarial system, the relationship between law and popular culture, among others. You should expect to develop a more in-depth understanding of these issues as well as a better appreciation of the cultural and political significance of the way that law, lawyers, and judges are depicted in the movies.

POL 3317. Food Politics: Actors, Arenas, and Agendas. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Food: Everyone eats it but we increasingly fight about how it is grown, transported, processed and consumed. This disagreements find their ways into politics, whether it is neighbors battling over backyard chicken ordinances, Members of Congress arguing over how best to protect the safety of the food supply, or countries engaging in trade wars to limit the importation of agricultural products. This course takes a broad, multi-disciplinary perspective on food politics drawing on concepts and ideas from political science, sociology, and economics to analyze several contemporary "food fights," including agricultural trade, U.S. farm bills, the National School Lunch Program, proposals for taxing sodas and fatty foods, and the labeling of genetically modified food. Take this course if you want to learn more about the various resources, arguments, evidence, and rules of engagement that structure contemporary food politics. This course satisfies the Social Science Core of the Liberal Education requirements and is an eligible elective for the public health minor in CLA and the Food Systems major in CFANS.

POL 3319. Education and the American Dream. (DSJ,SOCS; 3 cr. ; A-F or Audit; Every Fall)
What role does education play in American democracy? What role should it play? Does American education, particularly public education, live up to its citizens? hopes and expectations? And, perhaps most importantly, what do we mean by a ?good education?? This is a question with deep historical roots in this country, one that is the subject of current policy debates and one that cannot be separated from questions of discrimination and inequality. The over-arching theme of the course is to wrestle with what it means to be an educated citizen in the context of historical struggles to achieve that vision in the face of multiple and inter-related inequalities and competing visions about how to make the American dream a reality in the field of public education. No one political perspective will be offered or favored. No magic powder will be revealed on the last day of the course. The fact is that the underlying issues are really complicated, often seemingly intractable, and very, very political. This course is intended as introduction to education politics and policy in the United States. It will focus on K-12 education, especially in the public system. It is designed for any student who might have an interest in exploring education, public policy, or American government. Topics will include equality of educational opportunity, educating democratic citizens, school finance, the role of political institutions in making educational policy, and efforts to reform and remake American education, including charter schools, private school vouchers, and standardized testing. By the end of the course, students should have a basic understanding of the provision of public education in the United States, including the ways in which education is governed and the institutions involved in that governance. Students should be able to critically reflect on the degree to which American education fulfills the sometimes-competing goals Americans have for their schools. This course fulfills the Social Sciences Core of the University liberal education requirements. In this course students will act as policy analysts, with all of the complexity that such a task entails in the field of American public education. This course also fulfills the Diversity and Social Justice in the United States theme of the University liberal education requirements.

POL 3321. Issues in American Public Policy. (; 3 cr. ; Student Option; Periodic Fall)
This course examines the politics of social policy in the United States. Recent controversies over Social Security reform, the Patient Protection and Affordable Care Act (?Obamacare?), and the No Child Left Behind Act and Common Core showcase the profound political and substantive impact of this topic. The first half of the course places the United States in comparative perspective. Scholars typically describe the United States as a ?laggard? where social policies developed relatively late, grew relatively slowly, and are less generous than are corresponding policies in other advanced industrial democracies. Is this an accurate portrayal of American social

policy? Recent scholarship challenges the conventional wisdom, suggesting that the United States does not necessarily do less in terms of social policy but that it relies on an unusual set of policy tools to pursue objectives like poverty alleviation. What explains the distinctive shape of American social policy? This course investigates the impact of political culture, the relative power of various interest groups, the American constitutional system, and other factors. The second half of the course examines recent trends in American social policy, focusing on four specific policy areas: pensions, health care, education, and income support. It examines both the historical origins of contemporary American policies and recent reform proposals. A major theme of the course is that it is impossible to understand the contemporary shape of social policy, and the positions of specific stakeholders, without understanding the long-term historical processes that have shaped, and that continue to shape, the present political terrain of preferences and actors. New generations of leaders do not have the opportunity to build social policy from scratch. Rather, they have to react to what already exists. Some reforms will seem like logical extensions of what is already in place, while existing programs might make other alternatives difficult if not impossible to pursue. By understanding the roots of contemporary American social policy it becomes possible to devise a political strategy for major policy change.

POL 3323. Political Tolerance in the United States. (; 3 cr. ; Student Option; Every Spring)
Intergroup conflict continues to be one of the defining fault lines in American politics. Most obviously, the existence of racial inequality has consequences for any given individual?s social and economic standing. However, it also has had an enormous impact on the pattern of attitudes and beliefs that have served as the backdrop for many of society?s most pressing political debates and conflicts. The purpose of this course is to provide students with an introduction to how political scientists have studied ethno-racial attitudes and the larger problem of inter-ethnic conflict in American society.

POL 3325. U.S. Campaigns and Elections. (; 3 cr. ; A-F or Audit; Fall Even Year)
Presidential/congressional campaigns/ elections in the United States. How political scientists study electoral politics. Theoretical generalizations about candidates, voters, parties, and the media. Ways electoral context and "rules of the game" matter.

POL 3329. The Balance of Power: Federalism & Community in the United States. (3 cr. ; Student Option; Every Spring)
The appropriate balance of power between the national government and the states has been the subject of intense debate since the United States became an independent country in the eighteenth century, and it has never been resolved. This unresolved controversy has profound democratic and policy implications. Some of the political and social rights that are part and parcel of what it means to be a member of the American community are influenced by geography and the specific state in which an individual resides. For example, state governments make numerous decisions that define voter eligibility, an especially important form of community membership and political participation. In addition, federalism strongly affects the policymaking process. In fields as diverse as environmental protection and health care, the relationship between the national government and the states affects which policies are adopted and how they work in practice. While federalism is rarely at the forefront of the minds of the American public, it plays a central and increasingly important role in the U.S. political system. This course seeks to give students a better understanding of American federalism. By examining both the historical evolution of intergovernmental relations in the United States and contemporary policy debates, it also aims to help students develop the substantive knowledge and analytical skills they need to become critical thinkers. All of the writing assignments that students will complete in the course have been designed with this objective in mind, and the course will emphasize systematic thinking about politics, the explication of logically coherent arguments, and the use of relevant and appropriate empirical evidence to evaluate those arguments. The successful development of the critical thinking and writing skills emphasized in this course will enable students to communicate effectively in a variety of future roles, including as employees and citizens.

POL 3409. Introduction to Authoritarian Politics. (3 cr. ; Student Option; Every Fall)
For much of history, states were largely organized along dictatorial principles. There were the days of emperors and empresses, of kings and queens, of rulers who ruled not because they were elected by their subjects, but because they saw it as their right to reign and were shrewd enough to maintain their position in power. While it is true that monarchies have virtually disappeared from the modern political landscape, the same cannot be said about dictatorships. The purpose of this class is to examine this regime type by introducing students to the current literature on dictatorships. The core questions that will be addressed in the class are as follows: Are dictatorships qualitatively different from democracies or do regimes instead lie somewhere on a democracy-dictatorship continuum? How do dictators survive in power? In the absence of free and fair elections, how does the transfer of power occur in this political setting? In asking these questions, the goal is to go beyond the often simplistic descriptions of dictators as the all-powerful and omnipotent tyrant, the one who does as he pleases without having to fear any repercussions for his actions. Instead, we will learn that the dictator is only one among may other political elites that make up the regime and to survive, much less thrive, he must traverse the terrain of power politics with the utmost care.

POL 3410. Topics in Comparative Politics. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics of current analytical or policy importance to comparative politics. Topics vary, as specified in Class Schedule.

POL 3423. Politics of Disruption: Violence and Its Alternatives. (GP; 3 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
Political struggles aimed at undermining the existing political order have been a pervasive feature of global politics. Modern states have constantly been sites of relentless challenges from their citizenry, which sometimes take the form of non-violent action while on other occasions manifest in terrorism and violence. This course introduces students to the politics of disruption and violent and non-violent struggles targeted at bringing about political change. We will study a range of manifestations of such struggles focusing on some well-known cases such as the US civil rights movement, the Arab Springs, the Ferguson riots and the Islamic State (ISIS). Can non-violent resistance succeed against a coercive state? Why do individuals and groups participate in high-risk political struggles? What explains patterns of violence in civil conflicts? What are the effects of violence? What facilitates peace? This course will enable you to answer these questions.

POL 3431. Politics of India. (GP; 3 cr. [max 4 cr.] ; Student Option; Every Spring)
The course introduces students to the politics of India; a non-Western, parliamentary political system that stands out as a bastion of democracy in the developing world, despite underdevelopment & significant ethno-religious divisions. By focusing on India, we offer an understanding of the problems of democratization, underdevelopment, governance & political violence. We examine India?s political institutions & challenges confronting the institutions such as socio-economic inequalities, social exclusion, social divisions, ethno-religious & ideological insurgencies, criminalization of politics & rampant corruption. The course enables students to answer important questions: Why did democracy endure in post-colonial India when much of the developing world endured authoritarian regimes? What accounts for the persistence of ethno-religious conflict & violence? What determines a country?s approach to socio-economic development? What accounts for India?s economic development over the last few decades? How do we explain the existence of political democracy and rampant corruption?

POL 3451W. Politics and Society in the New Europe. (GP,WI; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
The devastation of Europe through two World Wars put the deadly results of ultra-nationalism on full display. To avoid such destruction again, a group of European technocrats and leaders embarked on a mission of incrementally deepening economic and later, social partnerships between an ever-expanding number of European countries. These efforts culminated in the birth of the European Union in the late 20th Century. From its inception, the Union has found obstacles in the forms of a weak institutional structure

and authority, deep skepticism of a central European authority, financial crisis, ethnic anxiety, and resurgent nationalism. Yet, the continuation and strengthening of the Union is seen as the antidote to the rise of anti-democratic and authoritarian tendencies on the continent. Some of the key questions that we will engage in are: What are the ideological and historical roots of the European Union? What are the structural flaws of the Union? What are the obstacles to a stronger Union? Is the Union still or even more essential than ever? What are the ways the Union could collapse from within and from the intervention of outside forces?

POL 3462. Politics of Race, Class, and Ethnicity. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Is it true that since the election of Donald Trump the United States is more racist than ever? Is racism on the rise elsewhere in the world? Consistent with the goals of liberal education, this course helps students navigate their way through what is often seen as one of the most perplexing and intractable problems in today's world?racial and ethnic conflicts. It supplies a set of theoretical tools that can be utilized in the most diverse of settings? including, though to a lesser extent, gender. Rather than looking at these conflicts, as the media and popular knowledge often does, as centuries-old conflicts deeply set in our memory banks, a script from which none of us can escape, the course argues that inequalities in power and authority?in other words, class?go a long way in explaining racial and ethnic dynamics. To support this argument, the course examines the so-called ?black-white? conflict in three settings, the U.S., South Africa and Cuba. While all three share certain similarities, their differences provide the most explanatory power. Most instructive is the Cuba versus U.S. and South Africa comparison. Specifically, what are the consequences for race relations when a society, Cuba, attempts to eliminate class inequalities? The course hopes to show that while we all carry with us the legacy of the past, we are not necessarily its prisoners.

POL 3464. Politics Economic Inequality. (; 3 cr. ; Student Option; Every Fall & Spring)
Democracy is premised on formal political equality. Yet if economic wealth can be transformed into political influence, then we have good reason to worry about the quality of democracy. In this course students engage the question of the relationship between inequality and democracy in comparative perspective. The course first explores core conceptual and normative issues: how do we measure economic inequality, and why should we care about it? We then turn to the origins of inequality and explanations of its evolution, and then consider political efforts to redress inequalities, starting with the question of why the poor do not soak the rich under democracy ? the ?Robin Hood Paradox.? We then turn to efforts to explain real-world variation in economic redistribution around the world. Finally, we explore consequences of inequality for democracy: the extent to which the rich ?win? over everyone else in terms of policy representation, and the impact of economic inequality on the long-term evolution of democracy itself.

POL 3477. Political Economy of Development. (GP,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
How can the vast disparities of wealth between countries be explained? Why have some countries in the post-colonial world, in particular, those of East Asia, experienced stunning economic growth, while those in other parts have not? We will explore inequality among nations through an engagement with competing explanations from multiple disciplines. Do free markets, the legacies of colonialism, state power, culture, or geography offer the most persuasive account of current patterns of global inequality? The course also examines what we mean by "development" and exposes students to cutting-edge debates in contemporary development studies. By the end of the course, students will have a better understanding of the causes of and possible solutions to global inequality.

POL 3479. Latin American Politics. (GP; 3 cr. ; Student Option; Every Fall)
This course offers an introduction to the political history and contemporary politics of Latin America, along with some of the main concepts and theories used by social scientists to explain the region?s political dynamics. Through a comparative, historical approach, the course aims to help students understand the continued challenges faced by countries in the region-- to the establishment of security, the rule of law and rights protection, to the stability and quality of democracy, and to sustainable and equitable economic growth? and how these interact. The objective of the course is not only to help students understand the similarities and differences in outcomes in Latin America over time, but also to reflect on what the region?s experiences can teach us about the requirements of and barriers to meaningful democracy and sustainable and equitable development around the world, including ?north of the border.? In other words, the course seeks not just to provide students? knowledge about Latin America, but to help them learn from Latin America.

POL 3481H. Comparative Political Economy: Governments and Markets. (; 3 cr. [max 4 cr.] ; A-F only; Periodic Fall & Spring)
This course analyzes the compatibility of democracy and markets-whether democratic institutions undermine (enhance) the workings of market institutions and vice versa. Competing theoretical perspectives in political economy are critically evaluated. And the experiences of countries with different forms of democratic market systems are studied. Among the topics singled out for in-depth investigation are the economics of voting, producer group politics, the politics of monetary and fiscal policy, political business cycles, and trade politics.

POL 3489W. Citizens, Consumers, and Corporations. (CIV,WI; 3 cr. ; Student Option; Spring Even Year)
Corporations are among the most powerful actors in the global political economy. They employ millions of people, produce a variety of goods, and have massive effects on the ecological and social environments in which they do business. How do ordinary people act in order to hold corporations accountable for the effects that their activities have on communities and individuals? This course focuses on two ways that people have mobilized to counter corporate power--as citizens and as consumers. When people mobilize as citizens, they put pressure on corporations through the political system--e.g. through mass protests, lobbying politicians, and pursuing claims through the courts. When people mobilize as consumers, they use the power of their purchasing decisions to encourage corporations to change their behavior. We will explore these different modes of action through an examination of corporate social responsibility/sweatshops, the industrial food system in the US, and the privatization of life (e.g. genes), water, and war.

POL 3701. Indigenous Tribal Governments and Politics. (DSJ,HIS; 3 cr. ; A-F or Audit; Fall Even Year)
History, development, structure, politics of American Indian Governments. North American indigenous societies from pre-colonial times to present. Evolution of aboriginal governments confronted/affected by colonizing forces of European/Euro-American states. Bearing of dual citizenship on nature/powers of tribal governments in relation to states and federal government.

POL 3733. From Suffragettes to Senators: Gender, Politics & Policy in the U.S.. (DSJ; 3 cr. ; A-F or Audit; Every Spring)
Overview to field of gender/politics. Examine role women play in U.S. policy process. How public policies are "gendered." How policies compare to feminist thinking about related issue area. Theories of role(s) gender plays in various aspects of politics.

POL 3752. Chicana/o Politics. (DSJ,SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Theory/practice of Chicana/o politics through analysis of Mexican American experience, social agency. Response to larger political systems/behaviors using social science methods of inquiry. Unequal power relations, social justice, political economy.

POL 3766. Political Psychology of Mass Behavior. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
How political behavior of citizens and political elites is shaped by psychological factors, including personality, attitudes, values, emotions, and cognitive sophistication. Political activism/apathy, leadership charisma, mass media, group identifications, political culture.

POL 3767. Political Psychology of Elite Behavior. (CIV; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Why do some world leaders seek cooperation while others advocate war? Why do some Presidents effect major change while others are relegated to the dustbin of history? How

does the personality of leaders affect how they behave in office? In this class, we will address questions like these by exploring the psychology of political elites, those members of society who wield outsized influence over political decisions. This outsized influence means that understanding how elites think is particularly important. It is also unusually difficult, leading some to argue that political psychology can play little role in understanding elite decision-making. Students will exit the class having mastered a body of knowledge about elite decision-making and learned about the different approaches that scholars take to study these decisions. They will also gain the critical capacity to judge arguments about politics, the ability to identify, define, and solve problems, and the skill to locate and critically evaluate information relevant to these tasks. Finally, this course takes a cooperative approach to learning, and many course activities will be structured around learning and working with a group of fellow students over the course of the semester. This course fulfills the Civic Life and Ethics theme requirement.

POL 3769. Public Opinion and Voting Behavior. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Polls are ubiquitous, measuring what Americans think on topics big and small. This course examines the nature, measurement, and consequences of public opinion in the contemporary United States, with a particular emphasis on understanding why some voters preferred Donald Trump to Hillary Clinton - vice versa ? in the 2016 presidential election. We? ll address the following questions throughout the term. First, how do pollsters measure what the public thinks about government and public affairs? Second, can we assume that the responses people give to survey questions reflect their true thoughts and feelings about politics? Third, what are the major factors that shape voter decision making in U.S. presidential elections? By the end of this semester you will have a broader and deeper understanding of the nature, measurement, meaning, and consequences of public opinion.

POL 3796. Media and Politics. (3 cr. ; Student Option; Every Fall)
Do facts matter anymore? Is press freedom under threat? Are audiences trapped in filter bubbles? Why do people hate the media, and how can the news be improved to better serve citizens? Explore the historical and contemporary dynamics that shape the relationship between professionals in the media, the mass public, and political actors across different parts of government. Study major forms of mass media, including television and newspapers, alongside new forms such as digital and social media. Look at specific reporting rituals and practices, as well as issues involving media ownership, regulation, ethics, and press freedom. We will study politicians? efforts to craft messages, advertise strategically, and target select audiences for political gain. The course will focus primarily, but not exclusively, on the United States, and you will be asked to engage with current events and the role of communication technologies in political and civic life.

POL 3810. Topics in International Relations and Foreign Policy. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Topics courses delve in-depth into important issues in contemporary international politics. They aim to give students the theoretical, conceptual, and historical understanding, and/or empirical tools needed to understand the complexity of international politics today. Topics courses vary substantially from year to year as specified in the class schedule, but recent topics courses have included: 'Technology and War', International Law', 'Drones, Detention and Torture: The Laws of War', and 'The Consequences of War.'

POL 3833. The United States and the Global Economy. (3 cr. ; Student Option; Periodic Fall & Spring)
POL 3833 teaches students about the politics of the global economy with a focus on the role the United States plays within it. The class covers a variety of topics in international political economy, including international trade, international investment, and international finance. Students will learn about the factors that drive politicians' decision-making, interest-group stances, and citizens' preferences over such salient issues as tariffs and other forms of trade protection, trade and investment agreements, central banking, interest rates, international migration, and more. No background in economics is required or assumed.

POL 3835. International Relations. (GP,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Why do countries go to war? Are individuals, organizations, and states driven by their interests or their ideas? What role does power play in international relations and is there any role for justice in global politics? Do international laws and transnational advocacy groups matter in a world dominated by powerful states? Whose interests are served by a globalizing world economy? These questions are central to the study of international relations, yet different theoretical approaches have been developed in an attempt to answer them. Often these approaches disagree with one another, leading to markedly different policy prescriptions and predictions for future events. This course provides the conceptual and theoretical means for analyzing these issues, processes, and events in international politics. By the end of this class, you will be able to understand the assumptions, the logics, and the implications of major theories and concepts of international relations. These include realism and neorealism, liberalism and liberal institutionalism, constructivism, feminism, Marxism, and critical theory. A special effort is made to relate the course material to world events, developments, or conflicts in the past decade or so.

POL 3841. The Consequences of War. (3 cr. ; Student Option; Periodic Fall & Spring)
War?both between and within states?is often horrific. With good reason, when the field of international relations emerged in the wake of the world wars, it was centrally preoccupied with shedding light on the causes of war so as thereby to prevent another one. But both interstate and civil wars are remarkably complex affairs. Notwithstanding wars? alarming human costs, their consequences are varied, often cross-cutting, and sometimes contradictory, and they resist our efforts to narrate their consequences in simple and straightforward ways. Wars can increase executive authority and strengthen the state, but they can also undermine inequitable international and domestic political orders? empires, authoritarian regimes?and make it possible for more just ones to take their place. In the name of insecurity and war, governments sometimes trample liberty, but those measures may eventually come to seem unwarranted and even provoke a backlash that expands human liberty. War is filled with privation and trauma, but its horrors can also inspire veterans and victims to mobilize and promote more humane norms. We are properly taught to hate war, to avoid it at all costs. Yet social and political good has sometimes, surprisingly, come out of war too. This course explores the consequences of violent conflict in all its dimensions?the threat of conflict, mobilization for conflict, and the experience of warfare?on, among others, international order and norms, the fate of states and empires, population movements, state-building, nationalism, democracy, civil society, gender roles, economic growth and inequality, the military-industrial complex, public health, and political culture. At this course?s end, you will emerge not only with greater substantive understanding of war?s consequences, but also with greater appreciation of war?s complexity. For better or worse, you will never look at war the same way again.

POL 3994. Directed Research: Distinguished Undergraduate Research Program. (2 cr. [max 4 cr.] ; A-F only; Every Fall, Spring & Summer)
Students accepted into the Distinguished Undergraduate Research Program work closely with a faculty mentor on supervised projects related to faculty research. Through these activities, students will deepen research, organizational, and communication skills that will prove useful for further training in political science or for other careers. Students are chosen through a highly competitive online application the semester prior to registration. Students should check with Political Science advising for details about the application process. This course is only open to Political Science majors.

POL 4085. Advanced Political Data Analysis. (4 cr. ; A-F only; Every Spring)
In this course, students learn how to use statistical methods to answer a wide variety of questions in political science. More specifically, students will focus on how to test hypotheses where the dependent variable is dichotomous, ordered categories, unordered categories, counts, and more. The course covers advanced topics in linear regression, including time series data, multilevel modeling, and

interaction terms. Assignments focus on how to convey statistical results in many different ways, ranging from technical reports, to blog posts, to personal communication. Students will learn and improve their skills in the R statistical software package. Prior knowledge of R is not required. This class is especially recommended for students completing an undergraduate thesis with a quantitative component as well as students who want to pursue graduate studies in political science.

POL 4210. Topics in Political Theory. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Topics in political theory, as specified in Class Schedule.

POL 4255. Comparative Real Time Political Analysis: Marxist versus Liberal Perspectives. (GP,HIS; 3 cr. ; Student Option; Every Spring)
Karl Marx and Frederick Engels had better democratic credentials than Alexis de Tocqueville and John Stuart Mill. Vladimir Lenin, too, had better democratic credentials than Max Weber and Woodrow Wilson. That? s the provocative argument of this course. Performing what it calls ?comparative real-time political analysis,? it presents convincing evidence to sustain both claims. When the two sets of protagonists are compared and contrasted in how they read and responded to big political events in motion, in real-time, the Marxists, it contends, proved to be better democrats than the Liberals. Real-time analysis argues that responding to and making decisions about events in motion is the real test of political perspective and theory; on Monday morning, we can all look smart. The writings and actions of all seven protagonists are the primary course materials? reading them in their own words. The European Spring of 1848, the United States Civil War, the 1905 Russian Revolution and, the 1917 Russian Revolution and end of World War I, all consequential in the democratic quest, are the main scenarios the course employs to test its claims. The findings, course participants will learn, challenge assumed political wisdom like never before. Employing the lessons of the comparisons to trying to make sense of current politics?given the unprecedented moment in which we find ourselves?is the other goal of the course.

POL 4267. Imperialism and Modern Political Thought. (CIV,HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
How has political theory been shaped by imperialism? We will investigate this question through a study of such key thinkers as Kant, Mill, Marx, Lenin, C?saire, Fanon, and Gandhi, reading them through the lens of empire. Our goal is to analyze how such thinkers reflected upon, problematized and, at times, justified forms of Western imperialism. We will look at their explicit reflections on empire, as well as more tangential or ostensibly separate themes that may have only been shaped by the imperial context in indirect ways. Finally, we will reflect upon our contemporary location as readers and agents situated in the wake of these political and intellectual developments, analyzed through the question of what it means to engage in anti-colonial, decolonial, and/or postcolonial critique. This course will combine lectures by the professor with student-led seminar discussion.

POL 4275. Domination, Exclusion, and Justice: Contemporary Political Thought. (3 cr. ; Student Option; Periodic Fall & Spring)
Contemporary Political Theory systematically analyzes the meaning and significance of concepts central to current politics: domination, exclusion, and justice. Starting from basic concerns about the nature of politics, humans, power and justice, this course will explore how these basic starting assumptions organize the norms, practices, and institutions of political and social order. To explore these topics, the field turns to key texts, as well as to political and social events and other media (film, historical documents, etc.). Through this course, students will also be introduced to different interpretive approaches, ranging from democratic theory, feminist, queer and critical race theories, as well as ethics and moral philosophy. Organized around the politics of the twentieth and twenty-first centuries, the course will pursue a range of questions about democratic legitimation, the exclusion of historically marginalized communities, systematic inequalities of different kinds, as well as ideals of democracy and justice. It will range from theoretical inquiry to practical questions of implementing different political projects. Through this course, students will develop skills in critical thinking, careful reading and clear writing, as well as recognizing and constructing arguments. These skills are basic for the critical, lifelong role that all of us play as members of political community. prereq: 1201 recommended

POL 4310. Topics in American Politics. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
See Class Schedule for description. prereq: 1001 or equiv or instr consent

POL 4315W. State Governments: Laboratories of Democracy. (WI; 3 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
State governments are rarely at the forefront of the minds of the American public, but in recent years they have made critical decisions about issues like education, health care, climate change, and same-sex marriage. State governments perform a host of vital services, and they regulate and tax a wide array of business activities. Moreover, the states have adopted a very wide range of approaches in addressing these and other policy issues. This course examines the institutional and political changes that sparked the recent ? resurgence of the states,? and it investigates why state policies differ so dramatically from one another. In addition to playing a central and increasingly important role in the U.S. political system, the American states provide an unusually advantageous venue in which to conduct research about political behavior and policymaking. They are broadly similar in many ways, but they also offer significant variation across a range of social, political, economic, and institutional characteristics that are central to theories about politics. As a result, it becomes possible for scholars to evaluate hypotheses about cause-and-effect relationships in a valid way. This course pursues two related objectives. Its first goal is to give students a better understanding of American state governments? substantive significance. Its second goal is to use the states as an analytical venue in which students can hone their research and writing skills. Students will design and complete an original research paper on an aspect of state politics of their choosing. They will develop a research question, gather and critically evaluate appropriate and relevant evidence, and discuss the implications of their research. prereq: 1001 or equiv, non-pol sci grad major or instr consent

POL 4317. Becoming Stupid: Anti-Science in American Politics. (3 cr. ; Student Option; Every Fall)
(1) Political attacks on basic science, including climatology & global warming, vaccines, the Big Bang, evolution, human reproduction, sexuality, and much more. (2) Pseudoscience and anti-intellectualism in American political culture. (3) Money, political interests, and propaganda that drive attacks on science.

POL 4335. African American Politics. (3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the historical and contemporary efforts by African Americans to gain full inclusion as citizens in the US political system. Specifically, the course explores advocacy efforts by civil rights organizations and political parties to obtain and enforce civil and political rights for blacks. An examination of these efforts begins in the Reconstruction Era and concludes with the historic election of the nation's first African American president. The course will cover topics such as the politics of the civil rights movement, black presidential bids and racialized voting in federal and state elections. Finally, the course examines how political parties and organized interests used the Voting Rights Act to increase the number of minorities in Congress. The course focuses on whether the growing number of minorities in Congress increases citizens' trust in government and their involvement in voting and participation in political organizations.

POL 4403W. Constitutions, Democracy, and Rights: Comparative Perspectives. (GP,WI; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Around the world, fundamental political questions are often debated and decided in constitutional terms, and in the United States, the constitution is invoked at almost every turn to endorse or condemn different policies. Is adhering to constitutional terms the best way to safeguard rights and to achieve a successful democracy? When and how do constitutions matter to political outcomes? This course centers on these questions as it moves from debates over how constitutional drafting processes should be structured and how detailed constitutions should be, to the risks and benefits of different institutional structures (federal v. unitary, and the distribution of powers between the executive, legislature, and

judiciary), to which rights (if any) should be constitutionalized and when and why different rights are protected, closing with a discussion of what rules should guide constitutional amendment and rewrite. For each topic, we compare how these issues have been resolved in the U.S. with alternative approaches in a wide variety of other countries around the globe. The goal is not only to expose students to the variety of ways, successful or unsuccessful, that other political communities have addressed these issues, but also to gain a more contextualized and clearer understanding of the pros and cons of the U.S. model, its relevance for other democratic or democratizing countries, whether and how it might be reformed, and, generally speaking, when/how constitutions matter for democratic quality and stability.

POL 4410. Topics in Comparative Politics. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics of current analytical or policy importance to comparative politics. Topics vary, as specified in Class Schedule.

POL 4461W. European Government and Politics. (GP,WI; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
This course will introduce you to three major topics that shape European social and political life today: 1) the struggle over what makes for a national/European identity: how contested national identities matter to European democratic politics and to the new populist movements, and the historical role of Islam in shaping European identities 2) the role of institutions in shaping popular representation and citizen agency; 3) European Union policies: dealing with immigration, the single currency and foreign and security policy especially in regard to Eastern/Central Europe and Russia. Each section will conclude with a comparative class debate, led by students, on the way contested historical interpretations and identities, institutions and policies matter also to US political and civic life. This is a writing intensive course and you will be asked to write a 12-15 page research essay on a European country of your choice. Several assignments, preceded by a writing workshop, will help you complete your final essay. The course will consist of lectures with PPTs, class discussions and group work, and at least one guest lecturer working in a local business connected with Europe. Indeed this course aims at preparing you to live and work in a deeply interconnected world, with special attention to the historical, social, political and economic ties between the US and Europe. Small changes will be made to the syllabus if current events or unexpected class needs require it, but the main themes, most readings and the assignments will remain as indicated in the syllabus. prereq: 1054 or 3051 or non-pol sci grad or instr consent

POL 4463. The Cuban Revolution Through the Words of Cuban Revolutionaries. (GP; 3 cr. ; Student Option; Every Fall)
Why do policy makers in Washington, D.C. continue to rail against the Cuban Revolution? Despite their best efforts, both Republican and Democratic administrations, the Revolution is still in place after six decades. How to explain? This is the central research question of the course. A definitive answer would require a thorough examination of the revolution from its initiation until today?which is beyond what can be done in a semester. The focus, rather, is more limited. First, how was the revolution made and consolidated?from 1953 until about 1969?and, second, how has it been able to survive and advance since the collapse of the Soviet Union, that is, since 1991? The emphasis here is on the role of leadership and strategy, how the Cubans and their leaders saw and see what they are doing?in their own words. This is an attempt to get into their heads, their understandings, through documents, speeches and writings. In keeping with the goals of liberal education, this course helps students to think outside the box of conventional wisdom. Why, for example, an underdeveloped society lacking many of the characteristics of a liberal democracy can do a better job in meeting the basic needs of its citizens than its far richer neighbor to the north? What the Cubans seek to do is reorganize human relations on the basis of solidarity and not individual self-interest. How successful they have been in that pursuit is exactly one of the questions to which the course seeks to provide an answer. These questions are not simply of intellectual interest. Given the deepening crisis of world capitalism with the accompanying human misery, to know about Cuba's reality can have life and death consequences. Given, also, that the U.S. government doesn?t make it easy for most of its citizens to travel to the island to make up their own minds about its reality, this course is a unique educational opportunity.

POL 4465. Democracy and Dictatorship in Southeast Asia. (GP; 3 cr. ; Student Option; Fall Even Year)
A fundamental question of politics is why some regimes endure for many years while others do not. This course examines the "menu of manipulation" through which dictators and democrats claim and retain power, and the conditions under which average citizens mobilize to challenge their governments, despite the risks and in the face of what may seem to be insurmountable odds. We will explore these political dynamics in Southeast Asia, one of the most culturally and politically diverse regions of the globe. Composed of eleven countries, Southeast Asia covers a wide geographical region stretching from India to China. With a rich endowment of natural resources, a dynamic manufacturing base, and a strategic location on China's southern flank, the region has come to play an increasingly important role in the political and economic affairs of the globe. Culturally and ethnically diverse, hundreds of languages are spoken, and the religions practiced include Buddhism, Catholicism, Hinduism, and Islam. The region is similarly diverse in its political systems, which range from democratic to semi-democratic to fully authoritarian.

POL 4474W. Russian Politics: From Soviet Empire to Post-Soviet State. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Twenty five years ago, Russia appeared to be democratizing and was even on friendly relations with the US and NATO. Now Vladimir Putin runs the state with the FSB (KGB), and US-Russian relations are at their worst point since the 1970s. This course examines major themes and periods in Soviet and Post-Soviet Russian politics. It begins with the Russian Revolution of 1917, and continues with a study of the creation of the USSR and Soviet rule under Lenin, Stalin, and later decades. We look in depth at the economic and political system set up by the Communist Party, and at the causes of its collapse in 1991, which has had profound legacies for the post-Soviet development of Russia. Then in the second half of the course we turn to themes of political, economic, social and civic development under Yeltsin and Putin. We will pose the following questions: Why does democratization begin and why does it fail? How is economic reform undermined? What type of state and regime is Russia now? What caused the Chechen wars and the massive bloodshed in the Caucasus during this period? Is Putin trying to recreate the Soviet Union and retake control of its neighbors? Are US-Russian relations improving as a result of Obama's "Reset," or are we now in an era of a new Cold War? What is Russia's goal in Syria, Iran, or Central Asia? Is Putin rebuilding Russia, or driving it to disaster, and how will this impact the West?

POL 4478W. Contemporary Politics in Africa and the Colonial Legacy. (GP,WI; 3 cr. ; Student Option; Every Spring)
Examines how current politics in mainly, though not exclusively, sub-Saharan Africa have been shaped by the pre-colonial and colonial processes. Reality of independence; recurrent political and economic crises, global context and prospects for effective democracy. prereq: 1054 or 3051 or non-pol sci grad or instr consent

POL 4481. Comparative Political Economy: Governments and Markets. (3 cr. ; Student Option; Periodic Fall & Spring)
This course analyzes the compatibility of democracy and markets - whether democratic institutions undermine (enhance) the workings of market institutions and vice versa. Competing theoretical perspectives in political economy are critically evaluated. And the experiences of countries with different forms of democratic market systems are studied. Among the topics singled out for in-depth investigation are the economics of voting, producer group politics, the politics of monetary and fiscal policy, political business cycles, and trade politics.

POL 4487. The Struggle for Democratization and Citizenship. (; 3 cr. [max 4 cr.] ; Student Option; Every Spring)
How best to advance democracy?through the ballot box or in the streets? This question more than any other is what informs the course. As well as the streets, the barricades and the battlefields, it argues, are decisive in the democratic quest. If democracy means the rule of the demos, the people, then who gets to be included in ?the people"? An underlying

assumption of the course is that the inclusion of previously disenfranchised layers of society into the category of the people, the citizens, is due to social struggles or the threat of such? an assumption to be examined in the course. Struggles refer to any kinds of movement for social change, from protests and strikes to revolutions broadly defined. This course seeks to see if there are lessons of struggle. The course traces the history of the democratic movement from its earliest moments in human history and attempts to draw a balance sheet. In the process it seeks to answer a number of questions. Did social inequality always exist? How do property rights figure in the inclusion process? What is the relationship between the state, social inequality and democracy? Which social layers played a decisive role in the democratic breakthrough? What are the effective strategies and tactics in the democratic struggle? How crucial is leadership? And lastly, can the lessons of the past inform current practice? A particular feature of the course is to read about the thinking and actions of activists on both sides of the democratic struggle in, as much as possible, their own words.

POL 4492. Law and (In)Justice in Latin America. (; 3 cr. ; A-F or Audit; Every Spring)
How law and justice function in contemporary Latin America. Similarities/differences within/ between countries and issue areas. Causes behind varied outcomes. Effectiveness of different reform efforts. Transitional justice, judicial review, judicial independence, access to justice, criminal justice (police, courts, and prisons), corruption, non-state alternatives. Issues of class, race/ethnicity, and gender.

POL 4494W. US-Latin American Relations. (WI; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
US foreign policy toward Latin America. Immigration, trade policy, relations with Cuba, drug war, relations with Venezuela.

POL 4497. Patronage & Corruption. (GP; 3 cr. ; Student Option; Every Spring)
This course examines dysfunction within the state apparatus -- in the specific forms of patronage, corruption, and clientalism -- and asks why such dysfunction persists and what factors drive it to change. The first half of the course will be primarily devoted to patronage. It will examine the functioning of the patronage mechanism; ask when and why patronage is abandoned in favor of meritocracy; and will assess the relationship between merit reforms and changes in the quality of governance. The second half of the course will be devoted to corruption. Specific topics to be covered will include: an examination of different forms of corruption, both at the level of political leaders and of bureaucratic officials; the relationship between corruption, democracy, transparency and accountability; governments' manipulation of corruption to provide incentives to bureaucratic and party officials; and different means of combating corruption. The course will conclude with an examination of the relationship between patronage, corruption, clientalism and party politics, with a particular focus on the mechanisms that cause the correlation between these different forms of mis-governance.

POL 4501W. The Supreme Court and Constitutional Interpretation. (CIV,WI; 3 cr. ; Student Option; Every Fall)
This Course is designed to introduce students to constitutional law, with an emphasis on the U.S. Supreme Court?s interpretation of Articles I, II, and III. This means that we will discuss how the nation?s Court of last resort has helped shape the powers of and constraints on the three branches of our federal government. We will also discuss and analyze the development of law surrounding the separation of powers, the structure of federalism, congressional power over the commerce clause, and the creation and demise of the concept of substantive due process. Successful completion of this course will satisfy the liberal education requirement of Civic Life and Ethics. Effective citizenship in the 21st century requires an understanding of our how government was created, is structured, and has been interpreted by the Supreme Court over the past two centuries. This course is premised on the notion that such an understanding is best achieved by reading the primary sources that led to these goals ? the opinions handed down by the U.S. Supreme Court.

POL 4502W. The Supreme Court, Civil Liberties, and Civil Rights. (CIV,WI; 3 cr. ; Student Option; Every Spring)
Supreme Court's interpretation of Bill of Rights, 14th amendment. Freedom of speech, press, religion; crime/punishment; segregation/ desegregation, affirmative action; abortion/ privacy.

POL 4525W. Federal Indian Policy. (WI; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Formulation, implementation, evolution, comparison of Indian policy from pre-colonial times to self-governance of new millennium. Theoretical approaches to federal Indian policy. Major federal Indian policies. Views/attitudes of policy-makers, reactions of indigenous nations to policies. Effect of bodies of literature on policies.

POL 4737W. American Political Parties. (WI; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
The American two-party system; party influence in legislatures and executives; decline of parties and their future. prereq: 1001 or equiv or instr consent

POL 4771. Race and Politics in America: Making Sense of Racial Attitudes in the United States. (DSJ; 3 cr. ; Student Option; Periodic Fall)
Race continues to be one of the defining fault lines in American politics. Most obviously, the existence of racial inequality has enormous consequences for any given individual's social and economic standing. However, it also has had an enormous impact on the pattern of attitudes and beliefs which have served as the backdrop for many of society's most pressing political debates and conflicts. The purpose of this course is to provide students with an introduction to how political scientists have studied racial attitudes and the larger problem of inter-ethnic conflict in American society. We will begin with a look at the historical circumstances which have given rise to the major research questions in the area. From there, we'll look at the major research perspectives in the area, and see how well they actually explain public opinion on matters of race. In doing so, we'll also get a look at some of the major controversies in this area of study, particularly the issues of whether the "old-fashioned racism" of the pre-civil-rights era has been replaced by new forms of racism; and the degree to which debates over policy matters with no apparent link to race - such as crime and social welfare - may actually have a lot to do with racial attitudes. Finally, we will conclude by taking an informed look at racial attitudes in recent American history, focusing on how racial attitudes and their political consequences of have changed - and not changed - over the course of the Obama presidency and the tumultuous 2016 election.

POL 4773W. Advocacy Organizations, Social Movements, and the Politics of Identity. (DSJ,WI; 3 cr. ; Student Option; Every Fall & Spring)
This course introduces students to the major theoretical concepts and empirical findings in the study of U.S interest group politics. Students will read books and articles from a wide range of topics that include how interest groups are formed and maintained; various strategies and tactics that groups use to influence Congress, the courts, and executive branch; and whether those strategies result in fair and effective representation for all citizens in society. Throughout the semester students will be exposed to research using a variety of methodologies and intellectual approaches. Further, the class discussions will emphasize general concepts that reoccur in the readings and in other classes. The goal is to assist students in mastering the key concepts in group politics. This is also a writing intensive course. Effective writing is encouraged through several writing assignments that require you to think clearly and express your thoughts concisely.

POL 4810. Topics in International Politics and Foreign Policy. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Analysis of selected issues in contemporary international relations. Topics vary, as specified in Class Schedule.

POL 4881. The Politics of International Law and Global Governance. (GP; 3 cr. ; Student Option; Periodic Fall & Spring)
A dense and expanding network of international rules and regulations now covers the globe. These laws seek to regulate almost every activity that takes place across and sometimes within borders. How and to what extent have they been helpful in resolving conflicts between countries or in facilitating the achievement of common goals? How does international law impact government, foreign policies, domestic politics or national legal systems? In addressing these questions, this course provides an introduction

to public international law for students of world politics. Throughout, we emphasize the relationship between law and politics and seek to understand why international law operates as it does. We will draw from historical and recent developments to explore these issues, including: the use of drones; the issue of war crimes and the formation of an International Criminal Court; the use of force for humanitarian purposes; the domestic impact of international human rights treaties; foreign investment disputes; and the relationship between international trade, development, and the environment.

POL 4885W. International Conflict and Security. (GP,WI; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Why do states turn to military force and for what purposes? What are the causes of war and peace? What renders the threat to use force credible? Can intervention in civil wars stall bloodshed and bring stability? How effective is military force compared to other tools of statecraft? How can states cope with the threat posed by would-be terrorists? What is counterinsurgency doctrine? What is the future of military force in global politics? This course addresses these questions?and others. The course is organized loosely into three sections or themes. The first section explores the causes and consequences of interstate war and peace. We will examine whether and how the international system, domestic institutions and politics, ideas and culture, and even human psychology shape the path to war. Along the way, we debate whether war has become obsolete and why great power rivalry might be raising its ugly head once again. Attention is also devoted to the impact of war on economy and politics as well as the relations between armed forces and civilian government. The second section of the class explores the possibilities, limits, and challenges of more limited uses of force?such as the threat of force (coercion), peacekeeping and humanitarian intervention, and terrorism and counterterrorism. A third theme explores the strategic and ethical implications of the use of force and especially of innovation in military technologies?nuclear weapons, cyber, drones. The course is organized around theoretical arguments, historical cases and data, and policy debates. Sessions are deeply interactive, engaged discussion is a must, and the class often divides into smaller groups for more intensive debate. Class time is also devoted to helping students craft an effective final research paper.

POL 4887. Thinking Strategically in International Politics. (MATH; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
The purpose of this class is threefold: First, to introduce students to the use and value of formal models of strategic interaction (game theoretic models) in international relations. Second, to impart some basic tools of such modeling to students. And third, to examine the contribution of theoretical models to substantive areas in international relations. In keeping with these three goals, the course is divided into three sections. The first two weeks will devoted to such questions as: What is a theoretical model? What are rational choice and game theory? How are game theoretic models employed in international relations and what have been seminal contributions to the literature? The next portion of the class will introduce students to the basic tools employed in game theoretic analysis. The readings will illustrate the use of the tools introduced in class. And five problem sets will be administered, requiring students to make use of these tools. The final portion of the class will examine substantive questions in international relations through the lens of game theory. The topics to be presented include: Domestic Politics and War, International Agreements and Treaties, International Finance and Trade, Conditionality, Terrorism, and Human Rights.

POL 4891. The Politics of Nuclear Weapons. (3 cr. ; Student Option; Periodic Fall & Spring)
Nuclear weapons have been a feature of international politics since the first use of nuclear weapons against Hiroshima and Nagasaki at the end of World War II. But how exactly do nuclear weapons affect international politics? Are they a force for peace or for instability and war? How likely is nuclear war or nuclear terrorism? How dangerous is nuclear proliferation? Why does the United States have so many nuclear weapons? Is nuclear disarmament possible or desirable? This course examines these questions. We will first examine the the technologies that underpin nuclear weapons and their effects and the major theories used to understand the ways in which nuclear weapons affect international politics. Second, we will examine the major historical episodes of the nuclear age, including the Manhattan Project and bombings of Hiroshima and Nagasaki; the evolution of nuclear strategy and the arms race between the Soviet Union and the United States; the proliferation of nuclear weapons to regional powers and the development of the global non-proliferation regime; nuclear crises including the Cuban Missile Crisis and Korean War; and the rise of arms control. Finally, we'll consider a range of contemporary issues, including nuclear terrorism; the role nuclear energy will (and should) play in the future, the feasibility of nuclear disarmament; the role of nuclear weapons in India-Pakistan and future US-China relations; and the possibility of nuclear deals with so-called "rogue states" like Iran or North Korea.

POL 4900W. Senior Paper. (WI; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Can be attached to any 3xxx or 4xxx course (with the agreement of that course's instructor). A 10-15 page paper is submitted for evaluation/ advice by instructor, then revised for final submission. prereq: Pol sr, instr consent

POL 4910. Topics in Political Science. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Topics courses provide students the opportunity to study key concepts and themes in political science with an interdisciplinary approach. Subject matter will vary course to course.

POL 4991. Political Science Capstone. (3 cr. ; A-F only; Every Fall & Spring)
The Political Science Capstone is a required course that provides students with a unique opportunity to reflect on, articulate, share, and build on their individual experiences in the major. It invites students to reflect on what they have learned as political science majors; to demonstrate their knowledge through the preparation of a portfolio of materials; and to think about how the knowledge, skills, and insights of acquired in their major experience can be used and applied outside of the University. Students double majoring in Political Science and another discipline may choose to take this course or complete the capstone in their other major. Political Science majors who are writing an Honors thesis are exempt from this capstone requirement, as the department will recognize the senior thesis as the capstone experience.

POL 4993. Honors Thesis: Directed Studies. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Individual research/writing of departmental honors thesis.

POL 4994. Directed Research: Individual. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Directed individual reading and research between a student and faculty member. Prerequisite instructor and department consent.

POL 5005. Political Engagement: Theories and Practice. (4 cr. ; A-F only; Every Fall)
Theories of political and civic engagement; case studies of challenges and opportunities in public service careers; ethics of political engagement.

POL 5065. Mentorship in Political Engagement. (3 cr. ; A-F only; Every Summer)
Open only for students admitted to the Master's in Political Engagement program. Individual practical public service research project to fulfill capstone requirement for the BA/MPP program. Design and implement unique and innovative public service project in a professional policymaking or political setting. Weekly direct consultation with faculty adviser and professional mentor. Must perform a minimum of 320 hours of work in a public service setting.

POL 5210. Topics in Political Theory. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in the Class Schedule.

POL 5280. Topics in Political Theory. (; 3-4 cr. [max 3 cr.] ; Student Option; Periodic Fall & Spring)
Topics in historical, analytical, or normative political theory. Topics vary, see Class Schedule. prereq: grad student

POL 5306. Presidential Leadership and American Democracy. (; 3 cr. ; Student Option; Periodic Fall)
Examines whether president's political and constitutional powers are sufficient to satisfy citizens' high expectations and whether

president should be expected to dominate American politics. prereq: grad student or instr consent

POL 5310. Topics in American Politics. (; 3 cr. ; Student Option; Every Fall & Spring)
See Class Schedule for description.

POL 5315. State Governments: Laboratories of Democracy. (WI; 3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
State governments are rarely at the forefront of the minds of the American public, but in recent years they have made critical decisions about issues like education, health care, climate change, and same-sex marriage. State governments perform a host of vital services, and they regulate and tax a wide array of business activities. Moreover, the states have adopted a very wide range of approaches in addressing these and other policy issues. This course examines the institutional and political changes that sparked the recent ? resurgence of the states,? and it investigates why state policies differ so dramatically from one another. In addition to playing a central and increasingly important role in the U.S. political system, the American states provide an unusually advantageous venue in which to conduct research about political behavior and policymaking. They are broadly similar in many ways, but they also offer significant variation across a range of social, political, economic, and institutional characteristics that are central to theories about politics. As a result, it becomes possible for scholars to evaluate hypotheses about cause-and-effect relationships in a valid way. This course pursues two related objectives. Its first goal is to give students a better understanding of American state governments? substantive significance. Its second goal is to use the states as an analytical venue in which students can hone their research and writing skills. Students will design and complete an original research paper on an aspect of state politics of their choosing. They will develop a research question, gather and critically evaluate appropriate and relevant evidence, and discuss the implications of their research. prereq: grad student or instr consent

POL 5322. Rethinking the Welfare State. (3-4 cr. [max 3 cr.] ; Student Option; Periodic Fall & Spring)
Competing arguments about welfare states in advanced industrial countries. Whether welfare states result from sectional interests, class relations, or citizenship rights. Compares American social policy with policies in other western countries. prereq: grad student

POL 5325. Political Actors in the American Policy Process. (3 cr. ; Student Option; Every Fall)
The role of political actors in the American policy process, focusing on actors within government (Congressional representatives, the President, bureaucrats, federal judges, state and local elected officials) and outside government (the public, interest groups, social movements, and the media). Theories of agenda setting, policymaking, and policy change. Graduate standing.

POL 5327. Politics of American Cities and Suburbs. (; 3 cr. ; Student Option; Periodic Fall)
Development/role of American local government. Forms and structures. Relationships with states and federal government. Local politics and patterns of power/influence. prereq: Credit will not be granted if credit has been received for: : 4327; [[1001 or 1002], [non-pol sci grad major or equiv]] or instr consent

POL 5331. Thinking Strategically in Domestic Politics. (; 3-4 cr. [max 3 cr.] ; Student Option; Periodic Fall)
Applications of rational-choice and game theories to important features of domestic politics in the United States and elsewhere. prereq: Credit will not be granted if credit has been received for: : 4331; grad student

POL 5403. Constitutions, Democracy, and Rights: Comparative Perspectives. (; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Around the world, fundamental political questions are often debated and decided in constitutional terms, and in the United States, the constitution is invoked at almost every turn to endorse or condemn different policies. Is adhering to constitutional terms the best way to safeguard rights and to achieve a successful democracy? When and how do constitutions matter to political outcomes? This course centers on these questions as it moves from debates over how constitutional drafting processes should be structured and how detailed constitutions should be, to the risks and benefits of different institutional structures (federal v. unitary, and the distribution of powers between the executive, legislature, and judiciary), to which rights (if any) should be constitutionalized and when and why different rights are protected, closing with a discussion of what rules should guide constitutional amendment and rewrite. For each topic, we compare how these issues have been resolved in the U.S. with alternative approaches in a wide variety of other countries around the globe. The goal is not only to expose students to the variety of ways, successful or unsuccessful, that other political communities have addressed these issues, but also to gain a more contextualized and clearer understanding of the pros and cons of the U.S. model, its relevance for other democratic or democratizing countries, whether and how it might be reformed, and, generally speaking, when/how constitutions matter for democratic quality and stability.

POL 5410. Topics in Comparative Politics. (; 1-3 cr. ; Student Option; Every Fall & Spring)
Topics of current analytical or policy importance. Topics vary, see Class Schedule. prereq: grad student

POL 5461. European Government and Politics. (WI; 4 cr. ; Student Option; Every Spring)
European political institutions in their social settings. Power and responsibility. Governmental stability. Political decision making. Government and economic order. prereq: grad student or instr consent

POL 5465. Democracy and Dictatorship in Southeast Asia. (GP; 3 cr. ; Student Option; Fall Even Year)
A fundamental question of politics is why some regimes endure for many years while others do not. This course examines the "menu of manipulation" through which dictators and democrats claim and retain power, and the conditions under which average citizens mobilize to challenge their governments, despite the risks and in the face of what may seem to be insurmountable odds. We will explore these political dynamics in Southeast Asia, one of the most culturally and politically diverse regions of the globe. Composed of eleven countries, Southeast Asia covers a wide geographical region stretching from India to China. With a rich endowment of natural resources, a dynamic manufacturing base, and a strategic location on China's southern flank, the region has come to play an increasingly important role in the political and economic affairs of the globe. Culturally and ethnically diverse, hundreds of languages are spoken, and the religions practiced include Buddhism, Catholicism, Hinduism, and Islam. The region is similarly diverse in its political systems, which range from democratic to semi-democratic to fully authoritarian.

POL 5477. Struggles and Issues in the Middle East. (; 4 cr. ; Student Option; Periodic Fall)
Turkey, Iran, Israel, and selected Arab states. Domestic politics of religious/secular, ethnic, economic, environmental, and other policy/identity issues. Regional politics of water access, Israeli/Palestinian/Arab world relationships, oil and Persian/Arabian Gulf, human rights. prereq: Credit will not be granted if credit has been received for: : 4477; 1054 or 3051 or non-pol sci grad student or instr consent

POL 5492. Law and (In)Justice in Latin America. (3 cr. ; A-F or Audit; Every Spring)
How law and justice function in contemporary Latin America. Similarities/differences within/between countries and issue areas. Causes behind varied outcomes. Effectiveness of different reform efforts. Transitional justice, judicial review, judicial independence, access to justice, criminal justice (police, courts, and prisons), corruption, non-state alternatives. Issues of class, race/ethnicity, and gender.

POL 5502. Supreme Court, Civil Liberties, and Civil Rights. (; 3 cr. ; Student Option; Every Spring)
Supreme Court's interpretation of Bill of Rights, 14th amendment. Freedom of speech, press, religion. Crime/punishment. Segregation/desegregation, affirmative action. Abortion/privacy. prereq: Credit will not be granted if credit has been received for: : 4502; 1001 or 1002 or equiv or non-pol sci grad student or instr consent

POL 5525. Federal Indian Policy. (; 3 cr. ; A-F or Audit; Periodic Fall)
Formulation, implementation, evolution, comparison of Indian policy from pre-colonial times to self-governance of new millennium. Theoretical approaches to federal Indian policy.

Major federal Indian policies. Views/attitudes of policy-makers, reactions of indigenous nations to policies. Effect of bodies of literature on policies. prereq: Credit will not be granted if credit has been received for: : 4525, AmIn 4525; grad student

POL 5737. American Political Parties. (; 3 cr. ; Student Option; Periodic Fall)
American two-party system. Party influence in legislatures/executives. Decline of parties, their future. prereq: grad student or instr consent

POL 5767. Public Opinion and Voting Behavior. (; 3 cr. ; Student Option; Every Fall & Spring)
Major factors influencing electoral decisions. Political attitude formation/change. Data analysis lab required. prereq: grad student or instr consent

POL 5810. Topics in International Politics and Foreign Policy. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Selected issues in contemporary international relations. Topics vary, see Class Schedule.

POL 5833. The United States in the Global EconomyUS For Econ Policy. (; 3-4 cr. [max 3 cr.] ; Student Option; Periodic Fall)
Domestic/international politics of United States. Foreign economic policy (trade, aid, investment, monetary, migration policies). Effects of policies and international economic relations on U.S. economy/politics. prereq: Credit will not be granted if credit has been received for: : 4833; grad student; 3835 recommended

POL 5885. International Conflict and Security. (; 3 cr. ; Student Option; Periodic Fall)
Alternative theories of sources of militarized international conflict. Theories applied to past conflicts. Theories' relevance to present. prereq: grad student

POL 5970. Individual Reading and Research. (1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq instr consent, dept consent, college consent.

Portuguese (PORT)

PORT 1101. Beginning Portuguese. (; 5 cr. ; Student Option; Every Fall & Summer)
Listening, speaking, reading, writing. Cultures of Portugal, Brazil, or Portuguese-speaking Africa. Workbook assignments, paired/small group activities.

PORT 1102. Beginning Portuguese. (; 5 cr. ; Student Option; Every Spring)
Reading, writing, speaking, listening. Cultures of Portugal, Brazil, or Portuguese-speaking Africa. Workbook assignments, paired/small group activities. prereq: 1101 or instr consent

PORT 1103. Intermediate Portuguese. (; 5 cr. ; Student Option; Every Fall)
Emphasizes speaking, comprehension. Reading/writing skills based on Portuguese-language materials. Cultures of Portugal, Brazil, or Lusophone Africa. prereq: 1102 or instr consent

PORT 1104. Intermediate Portuguese. (; 5 cr. ; Student Option; Every Spring)
Emphasizes speaking, comprehension. Reading/writing skills based on Portuguese-language materials. Cultures of Portugal, Brazil, or Lusophone Africa. Grammar review. Compositions, short presentations. prereq: 1103 or instr consent

PORT 3001. Portuguese for Spanish Speakers. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Uses communicative approach. prereq: [SPAN 1004 or SPAN 1014 or SPAN 1044, SPAN LPE pass] or instr consent

PORT 3003. Portuguese Conversation and Composition. (; 4 cr. ; Student Option; Every Fall & Spring)
Development of oral/written skills. Cultural information from Portuguese-speaking world. prereq: 1104 or 3001 or Port LPE

PORT 3501W. Global Portuguese: 1300-1900. (WI; 3 cr. ; Student Option; Every Fall)
Expressions of medieval/renaissance Portuguese culture/ colonial Brazilian culture through independence. Nineteenth century developments. Relation to new African empire, abolition of slavery, institution of Brazilian republic. prereq: 3003

PORT 3502W. Global Portuguese: 1900-present. (WI; 3 cr. ; Student Option; Every Spring)
Significant expressions of Brazilian culture, from colonial period to present. Emphasizes 20th/21st centuries. Literature, history, visual/ sound culture, architecture. prereq: 3003

PORT 3800. Film Studies in Portuguese. (; 3 cr. [max 9 cr.] ; A-F or Audit; Periodic Fall & Spring)
Films from Portuguese-speaking world in their historical, (geo)political, and socioeconomic contexts. Films from Brazil, Portugal, or Lusophone Africa analyzed under interdisciplinary framework, noting aspects related to cinematography/rhetoric. prereq: 3003 or instr consent or dept consent

PORT 3910. Topics in Lusophone Literatures. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Issues studied through literature, visual, sound, media culture from one or more Portuguese-speaking countries. Topics may include gender/sexuality, postcolonialism/globalization, transatlantic studies. prereq: 3003

PORT 4001. Portuguese for Spanish Speakers and Graduate Student Research. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Listening, reading, speaking, writing. Uses communicative approach. prereq: [SPAN 1004 or SPAN 1014 or SPAN 1044, SPAN LPE pass] or instr consent

PORT 4101. Beginning Portuguese for Graduate Student Research. (; 5 cr. ; Student Option; Every Fall)
Listening, speaking, reading, writing. Cultures of Portugal, Brazil, or Portuguese-speaking Africa. Workbook assignments, paired/small group activities. Meets concurrently with 1101.

PORT 4102. Beginning Portuguese for Graduate Student Research. (; 5 cr. ; Student Option; Every Spring)
Reading, writing, speaking, listening. Cultures of Portugal, Brazil, or Portuguese-speaking Africa. Workbook assignments, paired/small group activities.

PORT 4103. Intermediate Portuguese for Graduate Student Research. (; 5 cr. ; Student Option; Every Fall)
Emphasizes speaking, comprehension. Reading/writing skills based on Portuguese-language materials. Cultures of Portugal, Brazil, or Lusophone Africa. Meets concurrently with 1103.

PORT 4104. Intermediate Portuguese for Graduate Student Research. (; 5 cr. ; Student Option; Every Spring)
Emphasizes speaking, comprehension. Reading/writing skills based on Portuguese-language materials. Cultures of Portugal, Brazil, or Lusophone Africa. Grammar review. Compositions, short presentations. Meets concurrently with 1104.

PORT 5520. Portuguese Literary and Cultural Studies. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall)
Origins/development of modern Portuguese nation (late 15th to 20th century) using literature, cultural and literary criticism, history, sociology, and various media (film, art, music, Internet). Main cultural problematics pertaining to Portugal as well as fundamental literary texts.

PORT 5530. Brazilian Literary and Cultural Studies. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Study of origins and development of modern Brazilian nation (late 16th to 20th century) using literature, cultural and literary criticism, history, sociology) and various media (film, art, music, Internet). Main cultural problematics pertaining to Brazil as well as fundamental literary texts. prereq: Grad student or instr consent

PORT 5540. Literatures and Cultures of Lusophone Africa. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Origins/development of Lusophone Africa (Angola, Mozambique, Cape-Verde, Guinea-Bissau, Sao Toma, Principe). Literature, cultural/literary criticism, history, sociology, media (film, art, music). prereq: Grad student or instr consent

PORT 5910. Topics in Lusophone Cultures and Literatures. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Cultural manifestations in Portuguese-speaking world (Portugal, Brazil, Lusophone Africa). Literature, history, film, intellectual thought, critical theory, popular culture. Topics may include writers (e.g. Machado de Assis) groups of writers (e.g. Lusophone women writers), or problematics such as (post-)colonialism or Luso-Brazilian modernities. prereq: Grad student or instr consent

PORT 5930. Topics in Brazilian Literature. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall)
Major issues of Brazilian literature; focuses on important authors, movements, currents, and genres. Problems, socioeconomic questions, and literary techniques related to Brazilian themes. Topics specified in Class Schedule.

PORT 5970. Directed Readings. (1-4 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Lusophone studies (Portuguese-speaking Africa, Brazil, Portugal). Areas not covered in other courses. Students submit reading plans for particular topics, figures, periods, or issues. Prereq MA or PhD candidate, instr consent.

PORT 5990. Directed Research. (1-4 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Graduate-level research in literatures and cultures of the Portuguese-speaking world. Topics vary. Prereq Grad student or instr consent.

Postsecondary Tchg and Lrng (PSTL)

PSTL 1211. Sociological Perspectives: A Multicultural America. (DSJ,SOCS; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to sociological thinking through engaged, active learning, including service in community. Interaction of race, class, gender, age with greater societal institutions. Apply foundational understanding of sociology to real world situations.

PSTL 5306. College Student Mental Health. (2 cr. ; A-F only; Every Spring)
Mental health of college students, way colleges provide support for students with mental health concerns, basic skills all college faculty/ staff need to provide support to students experiencing distress, self-care strategies for support givers.

Poultry Health (POUL)

POUL 5101. Living in a microbial world and raising animals: the poultry perspective. (; 3 cr. ; A-F only; Every Fall)
It?s a microbial world. We are just living in it. This statement by Professor Mark Martin could not be more relevant than it is today. In every aspect of life, microbes play a role. This is particularly true in agricultural practices used to grow food for the human population. Good and bad, microbes are intricately linked to the practice of raising meat, fruits, and vegetables for human consumption. The purpose of this online course is to emphasize the holobiont, which is the host itself plus the assemblage of microbes living inside and outside of it. This is different than your typical microbiology course. Yes, we will cover the basics of microbiology, and the role of the microbiome in the maintenance of health and disease. But we will also put this information in the context of ecology. Using the poultry production environment as an example, you will learn about the basics of poultry production and how microbes contribute to every aspect of the production chain - including the bird itself, the barns that birds are grown in, the ecosystem surrounding these barns, the processing plants that produce our meat, and even ?us? as we interface with live production animals and consume their meat. In practical terms, this course will train you to appreciate and understand how normal ?commensal? microbes in the animal and its surrounding environment are important for everyday life, health, and success. This course is suitable for upper-level undergraduate students, graduate students, and non-traditional industry professionals.

POUL 5102. How safe is your chicken? Food safety from a poultry perspective. (; 3 cr. ; A-F only; Every Fall)
The purpose of this course is to provide introduction to food safety with emphasis on poultry production. An emphasis will be given to understanding the major pathogens transmitted through live poultry and products and how they can be controlled or mitigated in live production and processing steps. After completing this course, you will have understanding of the basic food safety principles, major foodborne pathogens in poultry, principles of hazard analysis and critical control points (HACCP)-approach of food safety, meat and egg safety, and major preharvest and post-harvest approaches to safety of poultry foods. This course is suitable for upper-level undergraduate students, graduate students, and non-traditional industry professionals.

POUL 5103. Poultry biosecurity: framework for healthy production. (; 3 cr. ; A-F only; Every Fall)
In 2015, an avian influenza virus was introduced to poultry production in the upper Midwestern United States. This outbreak resulted in the destruction of more than 43 million chickens and turkeys raised for meat and egg production, devastating these poultry industries. This changed our view of biosecurity forever as it related to protecting the poultry supply. While this virus has subsided, we do not know where or when the next threat will emerge, and as such we need to be prepared for the unknown. The purpose of this course is to provide the principles of biosecurity, with an emphasis on poultry production. This course will cover the basics of biosecurity, and the role of everyone in the maintenance of biosecurity in commercial broiler chickens, turkeys, and egg layers. You will learn about biosecurity and will learn how to develop an effective biosecurity plan while navigating regulations and other logistical challenges. This online course is suitable for upper-level undergraduate students, graduate students, and non-traditional industry professionals.

Product Design (PDES)

PDES 2701. Creative Design Methods. (3 cr. ; A-F only; Every Fall)
This class is an introduction to a variety of tools and methods used in developing new product concepts. The focus of the class is on the early stage of product development which includes user research, market research, idea generation methods, concept evaluation, concept selection, intellectual property, and idea presentation. Students work individually applying the content taught in lecture to a semester-long design project. Students meet in teams bi-weekly to present and critique their work.

PDES 2702. Concept Sketching. (3 cr. ; A-F only; Every Fall)
This class is an introduction to manual sketching techniques, specifically for the communication of conceptual product ideas. The focus of this class is on free-hand perspective drawing. Students begin with basic principles, simple shapes, light and shadow, and later learn how to combine forms to create conceptual objects with realistic perspective. In this class, there are weekly drawing assignments and presentations.

PDES 2703. Concept Visualization and Presentation 1. (3 cr. ; A-F only; Every Spring)
This class builds upon the fundamentals taught in PDES 2702 Concept Sketching. Students learn to draw complex geometries and organic forms and how to add shading, shadow, text and backgrounds to enhance their drawings. Markers and other physical tools are introduced in this class as a means of further refining a sketch. In the second half of the semester, students learn to digitally improve their sketches and are introduced to the fundamentals of digital sketching with a drawing tablet and digital sketching software. As this class is taught in smaller sections, there are many opportunities for students to present and critique work. The basics of design portfolios are covered at the end of this class.

PDES 2704. Concept Visualization and Presentation 2. (3 cr. ; A-F only; Every Fall)
Building upon the principles taught in PDES 2703 Concept Visualization and Presentation 1, this course covers advanced digital sketching and 2D rendering techniques for product designers. The emphasis of this class is placed on refining sketches for professional presentation. As this class is a co-requisite with PDES 2771 Product Design Studio 1, some assignments will compliment projects assigned in studio.

PDES 2771. Product Design Studio 1. (4 cr. ; A-F only; Every Fall)
This is the first design studio for product design majors. It is an introduction to user-centered design using industry-standard practices. Students will apply skills learned in their prior core classes towards a semester-long individual product design challenge. The deliverables focus on user research, market research, concept development, lo-fidelity prototyping, and concept presentation.

PDES 2772. Product Design Studio 2. (4 cr. ; A-F only; Every Spring)
This is the second studio course for product design majors. This studio explores physical prototype development using industry-standard practices. Students will apply skills learned in their prior core classes towards several individual product design

challenges. The deliverables cover human factors & ergonomics, prototype crafsmanship, aesthetics, form giving, functionality, design for manufacture, and presentation skills.

PDES 2777. Product Form and Model Making. (2 cr. ; A-F only; Every Fall & Spring)
This class is a hands-on introduction to prototyping tools, materials, and techniques for product design. Students learn the basics of working with foam-board, foam, and wood to create physical models and will be introduced to different surface treatments and finishes. Assignments are designed to build a sense of craftsmanship and attention to detail. There are multiple individual projects focusing on different materials and techniques. Each project involves practicing oral presentation and group critique.

PDES 3196. Product Design Internship. (1-2 cr. ; S-N only; Every Fall, Spring & Summer)
Supervised work experience relating activity in business, industry, or government to the student's area of study. Integrative paper or project may be required. prereq: PDes major

PDES 3704. Computer-Aided Design 1: Solid Modeling and Rendering. (3 cr. ; A-F only; Every Fall)
This class provides an overview of computer-aided design (CAD) methods for product designers. The primary software covered in this course include Solidworks and Keyshot. These programs are used to make three-dimensional computer generated models of product concepts and render the models to appear photo-realistic. This class may also cover additional 2D and interaction design software.

PDES 3705. History and Future of Product Design. (3 cr. ; A-F only; Every Spring)
This class covers critical milestones in the history, evolution, and trajectory of modern product design as well as the human relationships to consumer goods, including production and consumption. In some assignments, students have the opportunity to apply the topics discussed towards imagining the future of the product design industry.

PDES 3706. Designing for Manufacture. (4 cr. ; A-F only; Every Spring)
This class is a hands-on overview of common manufacturing methods, tools, and considerations for product designers. The focus is placed on plastic and metal related processes specifically machining, forming, casting, and molding. Throughout the course students apply the theory of design for manufacturing (DFM) and design for assembly (DFA) to a series of design projects. This course also covers related topics such as material identification, bill of material, cost estimation, part drawings, tolerances, fasteners, part finishing, and sourcing parts.

PDES 3711. Product Innovation Lab. (; 4 cr. ; A-F only; Every Spring)
A hands-on experience in integrated product design and development processes. Elements of industrial design, engineering, business, and humanities are applied to a semester-long product design project. Cross-functional teams of students in different majors work together to design and develop new consumer product concepts with guidance from a community of industry mentors.

PDES 3714. Computer-Aided Design Methods 2: Surface Modeling and Rendering. (3 cr. ; A-F only; Every Spring)
This class provides an overview of the digital surface modeling of existing products and conceptual objects with complex curves. Students will learn how to use the 3D surfacing software (e.g., Alias or Rhino) and apply material and texture with the rendering software (e.g., KeyShot). They will also gain a basic understanding of the science and logic behind the software. In addition, students will gain hands-on experience with topics closely related to this field including lighting, background, and render post-processing.

PDES 3715. Design and Food. (4 cr. ; A-F only; Every Fall)
This class is a hands-on introduction to principles of design applied to the food industry. Students develop new food concepts working in a kitchen classroom with regular advising from local chefs and food industry experts. The class is structured into four modules: creative design process, flavor and texture, visual aesthetics, and user experience. In each module students learn different design and food preparation methods and apply them to a design challenge. Several restaurant outings are incorporated into the curriculum.

PDES 3737. Product Design Portfolio. (2 cr. ; A-F only; Every Fall & Spring)
Portfolio skills specific to the field of product/industrial design. Development and critique of verbal and visual presentation skills. Overview of the breadth and expectations of the profession.

PDES 3771. Product Design Studio 3. (4 cr. ; A-F only; Every Fall)
This is the third studio course for product design majors in which students will further develop skills specific to their selected track/sub-plan. Students will apply skills learned in their prior core classes towards several individual product design challenges. Students in the user experience section may explore topics in service design, immersive environments, IoT, digital/physical integration, or smart products. Students in the integrated product development section may explore topics in furniture, medical devices, electromechanical products, consumer electronics, digital/physical integration, or smart products. Both sections will further develop presentation skills.

PDES 3790. Product Design Experience Abroad. (; 1-10 cr. ; A-F or Audit; Periodic Fall, Spring & Summer)
Faculty-led study abroad course. Destinations vary by semester offered.

PDES 4193. Directed Study in Product Design. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in product design under tutorial guidance. prereq: Undergrad, instr consent

PDES 4701W. Capstone Research Studio. (WI; 4 cr. ; A-F only; Every Fall)
Students synthesize and apply design and research techniques to a senior capstone project. Projects can be student-directed or client-sponsored and are intended to demonstrate competency in fundamental design skills, communicating and documenting design processes, and the ability to apply design processes to develop new products and services while addressing real-world constraints. The first course of the two-course sequence focuses on problem/opportunity identification, user research methodologies, ideation and conceptual design, and early stage prototyping.

PDES 4702W. Capstone Design Studio. (WI; 4 cr. ; A-F only; Every Spring)
Students synthesize and apply design and research techniques to a senior capstone project. Projects can be student-directed or client-sponsored and are intended to demonstrate competency in fundamental design skills, communicating and documenting design processes, and the ability to apply design processes to develop new products and services while addressing real-world constraints. The second course of the two-course sequence focuses on concept refinement, advanced prototyping, detailed design and engineering, user testing, manufacturing, and business and distribution considerations.

PDES 5193. Directed Study in Product Design. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in product design under tutorial guidance. prereq: Grad, instr consent

PDES 5701. User-Centered Design Studio. (3 cr. ; A-F only; Every Spring)
This class provides a studio-based overview of user-centered product design and development processes. Students will practice both user and market research, creativity and idea generation tools, concept evaluation/selection techniques, prototyping methods for concept development and communication, and user testing. This class will also cover fundamentals of intellectual property and manufacturing. In this studio, students will apply these skills towards the development of a product concept.

PDES 5702. Visual Communication. (3 cr. ; A-F only; Every Fall)
This class provides an overview of sketching and manual rendering for communication of conceptual product design. Topics covered will include free-hand perspective drawing of simple/complex geometries, shading/shadow, design details and annotations, as well as line weight/quality. There will be weekly drawing assignments and critique of work.

PDES 5703. Prototyping Methods. (4 cr. ; A-F only; Every Fall)
This class is a hands-on introduction to traditional and digitally interactive prototyping tools and techniques. Through a series of projects students will gain experience with building product models using different materials and tools related to foam core, foam,

wood, Arduino, and digital fabrication. In the process, the course covers design topics related to form and function, ergonomics, visual aesthetics, and design critique.

PDES 5704. Computer-Aided Design Methods. (3 cr. ; A-F only; Every Fall)
This class provides an overview of how to make high-quality digital computer-based models of existing and conceptual products and interactions. Students will learn Adobe Photoshop, Adobe Illustrator, and Axure for two-dimensional design and digital prototyping. Students will also learn SolidWorks and KeyShot for three-dimensional solid modeling and rendering. prereq: Senior or grad student

PDES 5705. History and Future of Product Design. (3 cr. ; A-F only; Every Spring)
This class covers critical milestones in the history, evolution, and trajectory of modern product design as well as the human relationships to consumer goods, including production and consumption. In some assignments, students have the opportunity to apply the topics discussed towards imagining the future of the product design industry.

PDES 5706. Designing for Manufacture. (4 cr. ; A-F only; Every Fall)
Hands-on exposure to a number of common manufacturing methods and the considerations in product design. Students will be able to apply the theory of design for manufacturing (DFM) and design for assembly (DFA) to other methods that may not be taught in this course. prereq: PDes 5704 or CAD experience.

PDES 5711. Product Innovation Lab. (; 4 cr. ; A-F only; Every Spring)
A hands-on experience in integrated product design and development processes. Elements of industrial design, engineering, business, and humanities are applied to a semester-long product design project. Cross-functional teams of students in different majors work together to design and develop new consumer product concepts with guidance from a community of industry mentors

Psychology (PSY)

PSY 1001. Introduction to Psychology. (SOCS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Scientific study of human behavior. Problems, methods, findings of modern psychology.

PSY 1001H. Honors Introduction to Psychology. (SOCS; 4 cr. ; A-F only; Every Fall & Spring)
Scientific study of human behavior. Problems, methods, findings of modern psychology. prereq: Honors.

PSY 1010. Topics in Psychology. (; 1-3 cr. ; Student Option; Periodic Fall & Spring)
Introductory topics of current interest in Psychology.

PSY 1912. Brain Science, Drugs and Society. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This course will examine substance use and misuse from the perspective of brain science. Mental health and societal issues surrounding drug and alcohol use will be covered including information from the popular media, government, and scientific research. Viewpoints surrounding each topic will be scrutinized through the lens of current brain and behavioral research. Students will gain a deeper ability to think critically and scientifically about popular beliefs regarding substance use. For instance, despite decades of study, existing research does not make clear whether brain deficits in human substance users are caused by misuse of substances, or caused by pre-existing factors (e.g., genetics, home environment) that predate substance use and predispose individuals to misuse in the first place. The course will draw from interesting new research conducted by faculty at the University of Minnesota and elsewhere to gain insight into this uncertainty. Although we will discuss these topics from a neurobiological standpoint, a background in neuroscience is not expected or necessary.

PSY 1914. What is the Human Mind?. (; 3 cr. ; A-F only; Periodic Fall & Spring)
You are reading the description of a seminar. That is, some part of you is capable of taking a series of shapes as visual input, abstracting intended meaning from them, organizing the information, and evaluating what you've organized (e.g. "fascinating seminar!"). Your mind accomplishes this task, not your lungs or heart, but what is this thing - "mind" - that is capable of such complex internal information processing? Is it just a flurry of activated brain cells? Is it something non-physical? When you think about it, one of the most intriguing aspects of the universe is that you can think, that minds operate as entities that appear to be crucially tied to physical brains but that are also importantly different. In this seminar, we will examine conceptions of the human mind from psychological, philosophical, and neuroscientific perspectives. Can science and critical analysis offer a concrete and compelling specification of the human mind?

PSY 1916. Race in Everyday Space. (DSJ; 3 cr. ; A-F only; Periodic Fall & Spring)
This seminar examines the nature and meaning of being racial and ethnic minorities in the United States, with a particular focus on immigrant, refugee, second-generation, and adoptee communities that are unique to Minnesota and the Midwest. Students will learn about the unique and common histories, struggles, and successes of Blacks, Asian Americans, Latinx, and American Indians. Drawing upon psychological theory and research, as well as interdisciplinary ethnic studies scholarship, the seminar engages students in a critical analysis of the ways in which race, ethnicity, and migration affect the everyday lives of racial/ethnic minority individuals and families.

PSY 1923. The Freshman 15: Stress and Health Management for College Students. (; 3 cr. ; A-F only; Periodic Spring)
The start of college is a time of significant transition from family home to campus living. The changes across many domains of one? s life can disrupt healthy habits and initiate unhealthy ones. Are your stress levels out of control? Are you worried about your college eating habits? Are you planning to catch up on sleep after you graduate? In this seminar we will use a biopsychosocial framework, popular in health psychology, to examine personal health influences and choices. You will gain insight into your own health and learn methods to improve and sustain health behaviors that will better support your life as a student and your life beyond college.

PSY 3001V. Honors Introduction to Research Methods. (WI; 4 cr. ; A-F only; Every Spring)
Concepts/procedures used to conduct/evaluate research, especially in social sciences. Benefits/limitations of traditional research methods. Evaluating scientific claims. prereq: [1001, [2081/3801 or equiv]]or dept consent, PSY major, honors student

PSY 3001W. Introduction to Research Methods. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Concepts/procedures used to conduct/evaluate research, especially in social sciences. Benefits/limitations of traditional research methods. Evaluating scientific claims. prereq: [1001, [2801 or 3801 or equiv]] or dept consent

PSY 3011. Introduction to Learning and Behavior. (; 3 cr. ; Student Option; Every Fall)
Methods/findings of research on learning and behavior change. Twentieth-century theoretical perspectives, including contemporary models. Emphasizes animal learning and behavioral psychology. prereq: 1001

PSY 3031. Introduction to Sensation and Perception. (; 3 cr. ; Student Option; Every Fall & Spring)
Psychological, biological, and physical bases of sensory experience in humans and animals. Emphasizes senses of vision/hearing. prereq: PSY 1001

PSY 3051. Introduction to Cognitive Psychology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Scientific study of the mind in terms of representation and processing of information. Research and theory on cognitive abilities such as perception, attention, memory, language, and reasoning. Aspects of computational modeling and neural systems. prereq: 1001

PSY 3061. Introduction to Biological Psychology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Neurophysiology/neuroanatomy, neural mechanisms of motivation, emotion, sleep-wakefulness cycle, learning/memory in animals/humans. Neural basis of abnormal behavior, drug abuse. prereq: 1001 or BIOL 1009 or NSci 1100 prereq: 1001 or BIOL 1009 or NSci 1100

PSY 3101. Introduction to Personality. (; 3 cr. ; Student Option; Every Fall & Spring)
Covers the major issues in personality psychology, including personality traits, their assessment, and their roots in genetic and environmental influences; personality development and the effects of personality on

life outcomes; psychological and biological processes related to personality; and the importance of goals, roles, and narrative identity. Various contemporary and historical perspectives are considered, including psychodynamic, humanistic, behaviorist, and evolutionary approaches. prereq: 1001

PSY 3121. History and Systems of Psychology. (; 3 cr. ; Student Option; Every Spring)
Survey of the history, methods, and content of modern psychological theory, research, and application. Schools of psychology (e.g., structuralism, functionalism, behaviorism, Gestalt psychology) and central theories of psychology reviewed in their historical and philosophical context. prereq: PSY 1001

PSY 3135. Introduction to Individual Differences. (3 cr. ; Student Option; Every Fall & Spring)
Differential methods in studying human behavior. Psychological traits. Influence of age, sex, heredity, environment in individual/group differences in ability, personality, interests, social attitudes. prereq: [1001, [3801 or equiv]] or instr consent

PSY 3201. Introduction to Social Psychology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Overview of theories/research in social psychology. Attitudes/persuasion, social judgment, the self, social influence, aggression, prejudice, helping, and applications. prereq: 1001 or instr consent

PSY 3206. Introduction to Health Psychology. (; 3 cr. ; Student Option; Every Spring)
Theories/research in health psychology. Bi-directional relationships between psychological factors and physical health. Stress/coping, adjustment to chronic illness. Psychological factors in etiology/course of disease. Health behavior change. prereq: 1001

PSY 3301. Introduction to Cultural Psychology. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Theories/research on how culture influences basic psychological processes (e.g., emotion, cognition, psychopathology) in domains that span different areas of psychology (e.g., social, clinical, developmental, industrial-organizational) and of other disciplines (e.g., anthropology, public health, sociology). prereq: 1001

PSY 3511. Introduction to Counseling Psychology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
History, theories, and research related to counseling psychology. Development/application of counseling theories to diverse populations. Psychological research on counseling process. Psychological mechanisms that promote change in people's lives. prereq: 1001

PSY 3604. Introduction to Abnormal Psychology. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Diagnosis, classification, etiologies of behavioral disorders. prereq: 1001

PSY 3617. Introduction to Clinical Psychology. (; 3 cr. ; Student Option; Every Fall & Spring)
Historical developments, contemporary issues. Trends in psychological assessment methods, intervention strategies, and clinical psychology research. Theories behind, empirical evidence for, usefulness of psychological intervention strategies. prereq: 3604 or 5604H

PSY 3621. Japanese Traditions & Psychology of Well-Being. (3 cr. ; Student Option; Periodic Summer)
During this class we will travel to the two main regions of Japan, Honshu, and Oki-Shoto. Students will deepen their knowledge of Japanese culture, consider lifespan development within the context of family and examine rituals and traditions within the context of family. To understand these traditions, students will apply their deepening knowledge of the culture. From a lifespan development perspective, we will plan to study some of the common developmental processes that occur, emphasizing individual and family development. Finally, we will explore family traditions and rituals in Japan including: (a) what function they serve; (b) what factors are associated with tradition adherence; and (c) influences outside (e.g., nuclear war) or inside (e.g., parental mental illness) the family that may promote or interfere with these traditions. No Japanese language knowledge is required.

PSY 3633. Happiness: Integrating Research Across Psychological Sciences. (; 3 cr. ; Student Option; Every Fall)
Nature of human happiness/fulfillment. Insights from cognitive, personality, and social psychology, and from biology and economics. Integrative approach to feelings that make life worth living. prereq: 3001W or 3001V or instr consent

PSY 3666. Human Sexuality. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Overview of theories, research, and contemporary issues in human sexual behavior from an interdisciplinary perspective. Sexual anatomy/physiology, hormones/sexual differentiation, cross-cultural perspectives on sexual development, social/health issues, and sexual dysfunction/therapy. prereq: 1001

PSY 3711. Psychology in the Workplace. (; 3 cr. ; Student Option; Every Fall & Spring)
Application of psychological theory/research to recruitment, personnel selection, training/development, job design, work group design, work motivation, leadership, performance assessment, job satisfaction measurement. prereq: 1001, [2801/3801 or equiv] or SCO 2550 or instr consent

PSY 3801. Introduction to Psychological Measurement and Data Analysis. (MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Descriptive/basic inferential statistics used in psychology. Measures of central tendency, variability, t tests, one-way ANOVA, correlation, regression, confidence intervals, effect sizes. Psychological measurement. Graphical data presentation. Statistical software. prereq: High school algebra, [PSY 1001 or equiv]; intended for students who plan to major in psychology

PSY 3801H. Honors Introduction to Psychological Measurement and Data Analysis. (MATH; 4 cr. ; A-F only; Every Fall)
Descriptive/basic inferential statistics in psychology. Measures of central tendency, variability, t tests, one-way ANOVA, correlation, regression, confidence intervals, effect sizes. Psychological measurement. Graphical data presentation. Statistical software. prereq: [1001 or equiv], high school algebra, honors; intended for students who plan to major in psychology

PSY 3896. Internship in Psychology. (; 1-4 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Students secure an internship in the realm of child psychology/development. A student may only earn credit for a given internship through one course at a time. Corresponding online coursework includes written reflections, journals, and career development activities. Credits are variable based on hours at your site: - 1 credit - 45 hour minimum (average 3-4 hours per week) - 2 credit - 90 hour minimum (average 5-7 hours per week) - 3 credit - 135 hour minimum (average 8-9 hours per week) - 4 credit - 180 hour minimum (average 10-12 hours per week) Students and their supervisors must submit a completed internship contract via Goldpass in order to register. http://goldpass.umn.edu/ Contact the PSY advisor with any questions. prereq: Psychology BA/BS, Department Permission

PSY 3901W. Major Project - Research Laboratory. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Completion of undergraduate major project. prereq: [3801 or equiv], 3001W, completion of five courses from three distribution areas, PSY major, senior

PSY 3902W. Major Project - Individual Interests. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Completion of undergraduate major project. prereq: [3801 or equiv], [3001W], completion of five courses from three distribution areas, PSY major, sr

PSY 3903W. Major Project - Community Engagement. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Completion of undergraduate major project. prereq: [3801 or equiv], 3001W, completion of five courses from three distribution areas, PSY major, senior

PSY 3960. Undergraduate Seminar in Psychology. (; 1-5 cr. [max 45 cr.] ; Student Option; Every Fall, Spring & Summer)
Undergraduate seminars in subjects of current interest in psychology. prereq: 1001

PSY 3993. Directed Study. (1-6 cr. [max 24 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent reading leading to paper or to oral or written exam. Prereq instr consent, dept consent, college consent.

PSY 3996. Undergraduate Fieldwork and Internship in Psychology. (; 1-4 cr. [max

16 cr.] ; Student Option; Every Fall, Spring & Summer)
Supervised fieldwork/internship in community/industry pertinent to formal academic training in psychology. prereq: 1001, instr consent, dept consent

PSY 4021. Creativity Sciences: Minds, Brains, and Innovation. (3 cr. ; A-F only; Spring Odd Year)
Creativity and innovation play a pivotal role in our individual and collective lives. How do our minds, brains, and environments together enable the generation of useful novel ideas? This course investigates this question, using empirical findings and methods from the cognitive and brain sciences and other disciplines. Both close readings of original empirical research articles and active hands-on/minds-on within-class experiments and collaborative activities are core parts of the course. Two integrative themes throughout the course are the need for dynamically adaptive (contextually sensitive) variation in both levels of cognitive control and goal guidance (deliberate to spontaneous to automatic) and our level of representational specificity (concrete and specific to mid-level to abstract). prereq: Psy 1001

PSY 4021. Creativity Sciences: Minds, Brains, and Innovation. (3 cr. ; A-F only; Spring Odd Year)
Creativity and innovation play a pivotal role in our individual and collective lives. How do our minds, brains, and environments together enable the generation of useful novel ideas? This course investigates this question, using empirical findings and methods from the cognitive and brain sciences and other disciplines. Both close readings of original empirical research articles and active hands-on/minds-on within-class experiments and collaborative activities are core parts of the course. Two integrative themes throughout the course are the need for dynamically adaptive (contextually sensitive) variation in both levels of cognitive control and goal guidance (deliberate to spontaneous to automatic) and our level of representational specificity (concrete and specific to mid-level to abstract).

PSY 4032. Psychology of Music. (; 3 cr. ; Student Option; Every Spring)
Sound, hearing, music perception. Cognitive neuroscience of music appreciation/production. Concepts in perception/production of sound/music. Music psychology topics. Recent primary research. prereq: Grad or [[jr or sr], [3011 or 3031 or 3051 or 3061]] or instr consent

PSY 4036. Perceptual Issues in Visual Impairment. (; 3 cr. ; Student Option; Periodic Fall)
Challenges/capabilities of people who are blind or have low vision. Reading, space perception, mobility. Strengths/weaknesses of adaptive technology. prereq: 1001 or instr consent

PSY 4207. Personality and Social Behavior. (3 cr. ; A-F or Audit; Every Fall)
Conceptual/methodological strategies for scientific study of individuals and their social worlds. Applications of theory/research to issues of self, identity, and social interaction. prereq: 3101 or 3201 or honors or grad student or instr consent

PSY 4501. Psychology of Women and Gender. (; 3 cr. ; Student Option; Every Spring)
Theory/research regarding psychology of women and psychological sex differences/similarities. Issues unique to women (e.g., pregnancy). Research comparing men/women in terms of personality, abilities, and behavior. prereq: [[Jr or sr], psych major] or instr consent

PSY 4521. Psychology of Stress and Trauma. (; 3 cr. ; A-F only; Every Spring)
This course covers the major theories and research findings related to stress and trauma, including the effects of stress and trauma on mental and physical health, factors related to more effective coping with stress/trauma and interventions designed to decrease the negative effects of stress and trauma. Course material will highlight research related to stress and coping with the COVID-19 pandemic. The course focuses on both research methods and personal application of research findings. prereq: PSY 1001 and 3001W or PSY 3001V or CPSY 3308W

PSY 4902V. Honors Project. (WI; 1-6 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Critical literature review or empirical study. prereq: instr consent, dept consent

PSY 4960. Seminar in Psychology. (; 1-4 cr. [max 16 cr.] ; Student Option; Periodic Fall & Spring)
Seminars in subjects of current interest in Psychology. prereq: [1001, psych major] or instr consent

PSY 4993. Directed Research: Special Areas of Psychology and Related Sciences. (; 1-6 cr. [max 48 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed research projects in psychology. prereq: instr consent, dept consent

PSY 4994V. Honors Research Practicum. (WI; 4 cr. ; A-F only; Every Spring)
Practical experience conducting psychological research. Preparation for completion of honors thesis. Research ethics, practical aspects of conducting psychological research, writing research reports. Students assist faculty and advanced graduate students in research. prereq: [3001W or 3001V], psych major, honors

PSY 4996H. Honors Internship/Externship. (; 1-6 cr. ; A-F only; Every Fall, Spring & Summer)
Supervised internship/externship experience in a community-service or industrial setting relevant to formal academic training/objectives. prereq: Honors, instr consent, dept consent, college consent

PSY 5014. Psychology of Human Learning and Memory. (; 3 cr. ; A-F only; Spring Odd Year)
Human memory encoding/retrieval. How we adaptively use memory. Brain systems that support memory. Episodic/semantic memory. Working/short-term memory. Procedural memory. Repetition priming. Prospective remembering. Autobiographical memory. prereq: 3011 or 3051 or honors or grad student

PSY 5015. Cognition, Computation, and Brain. (; 3 cr. ; Student Option; Spring Even Year)
Human cognitive abilities (perception, memory, attention) from different perspectives (e.g., cognitive psychological approach, cognitive neuroscience approach). prereq: [Honors or grad] or [[jr or sr], [3011 or 3031 or 3051 or 3061]] or instr consent

PSY 5018H. Mathematical Models of Human Behavior. (; 3 cr. ; A-F only; Periodic Fall)
Mathematical models of complex human behavior, including individual/group decision making, information processing, learning, perception, and overt action. Specific computational techniques drawn from decision theory, information theory, probability theory, machine learning, and elements of data analysis. prereq: Math 1271 or instr consent

PSY 5031W. Perception. (WI; 3 cr. ; Student Option; Fall Odd Year)
Cognitive, computational, and neuroscience perspectives on visual perception. Topics include color vision, pattern vision, image formation in the eye, object recognition, reading, and impaired vision. prereq: 3031 or 3051 or instr consent

PSY 5036W. Computational Vision. (WI; 3 cr. ; Student Option; Fall Even Year)
Applications of psychology, neuroscience, computer science to design principles underlying visual perception, visual cognition, action. Compares biological/physical processing of images with respect to image formation, perceptual organization, object perception, recognition, navigation, motor control. prereq: [[3031 or 3051], [Math 1272 or equiv]] or instr consent

PSY 5037. Psychology of Hearing. (; 3 cr. ; Student Option; Periodic Fall)
Biological and physical aspects of hearing, auditory psychophysics, theories and models of hearing, perception of complex sounds including music and speech. Clinical/other applications. Prereq: Instructor permission

PSY 5038W. Introduction to Neural Networks. (WI; 3 cr. ; Student Option; Fall Odd Year)
Parallel distributed processing models in neural/cognitive science. Linear models, Hebbian rules, self-organization, non-linear networks, optimization, representation of information. Applications to sensory processing, perception, learning, memory. prereq: [[3061 or NSC 3102], [MATH 1282 or 2243]] or instr consent

PSY 5052. Psychology of Attention. (3 cr. ; A-F only; Fall Odd Year)
Is attention needed for perception? Are we more likely to attend to locations associated with reward? Does brain training work? Are attention deficits at the root of autism spectrum disorders? This course will introduce students to advanced topics in the psychology of attention. It will combine didactic lecturing,

instructor-led discussions, and student-led discussions on core topics of attention and its neural substrates. Students will acquire familiarity with theories, phenomena, and experimental paradigms of attention. prereq: Psy 3051 or equivalent

PSY 5054. Psychology of Language. (; 3 cr. ; Student Option; Every Fall)
Theories/experimental evidence in past/present conceptions of psychology of language. prereq: Grad or [[jr or sr], [3011 or 3031 or 3051 or 3061]] or instr consent

PSY 5062. Cognitive Neuropsychology. (; 3 cr. ; Student Option; Every Fall)
Consequences of different types of brain damage on human perception/cognition. Neural mechanisms of normal perceptual/cognitive functions. Vision/attention disorders, split brain, language deficits, memory disorders, central planning deficits. Emphasizes function/phenomenology. Minimal amount of brain anatomy. prereq: Grad or [[jr or sr], [3011 or 3031 or 3051 or 3061]] or instr consent

PSY 5063. Introduction to Functional MRI. (; 3 cr. ; A-F only; Every Fall)
How to understand and perform a brain imaging experiment. Theory and practice of functional MRI experimental design, execution, and data analysis. Students develop experimental materials/acquire and analyze their own functional MRI data. Lectures/lab exercises. prereq: Jr or sr or grad or instr consent

PSY 5064. Brain and Emotion. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Introduction to affective neuroscience. How brain promotes emotional/motivated behavior in animals/humans. Biological theories of emotion in historical/current theoretical contexts. Fundamental brain motivational systems, including fear, pleasure, attachment, stress, and regulation of motivated behavior. Implications for emotional development, vulnerability to psychiatric disorders. prereq: 3061 or 5061 or instr consent

PSY 5065. Functional Imaging: Hands-on Training. (; 3 cr. ; Student Option; Every Spring)
Basic neuroimaging techniques/functional magnetic resonance imaging (fMRI). First half of semester covers basic physical principles. Second half students design/execute fMRI experiment on Siemens 3 Tesla scanner. prereq: [3801 or equiv], [3061 or NSCI 3101], instr consent

PSY 5066. Neuroscience, Philosophy and Ethics. (3 cr. ; Student Option; Every Spring)
Neuroscience increasingly allows us to explain the human experience in terms of mechanistic, electrochemical processes. The current course explores philosophical issues sparked by these developments in two modules. The first module examines the ways in which human neuroscience may shed new light on age-long philosophical quagmires such as mind-body dualism, free-will, and consciousness. For example, will neuroscience solve the mind-body problem by providing a wholly physical account of human nature? Is the neural view of decision making as a logical consequence of brain states incompatible with free-will? Can all of conscious experience (qualia) be reduced to neurobiology? The second module turns to neuro-ethical questions regarding the potential benefits and harms neuroscience might bring to the moral fabric of society.

PSY 5101. Personality: Current Theory and Research. (; 3 cr. ; Student Option; Spring Odd Year)
Current theory and research on personality functioning and personality structure. Descriptive, biological, evolutionary, cognitive, developmental, cultural, and narrative perspectives on personality. prereq: Psy 3001W and either Psy 3101 or Psy 3135 OR Psychology PhD student

PSY 5135. Psychology of Individual Differences. (; 3 cr. ; Student Option; Periodic Spring)
Differential methods in study of human behavior. Psychological traits. Influence of age, sex, heredity, and environment in individual/group differences in ability, personality, interests, and social attitudes. prereq: [3001W or equiv] or [5862 or equiv] or instr consent

PSY 5136. Human Abilities. (; 3 cr. ; Student Option; Every Spring)
Theory, methods, and applications of research in human abilities. Intelligence, aptitude, achievement, specific abilities, information processing/learning and intelligence, aptitude/treatment interactions, and quantitative measurement issues. prereq: [3001W or 3001V], [3135 or 5135], [5862 or equiv] or instr consent

PSY 5137. Introduction to Behavioral Genetics. (; 3 cr. ; Student Option; Every Fall)
Genetic methods for studying human/animal behavior. Emphasizes nature/origin of individual differences in behavior. Twin and adoption methods. Cytogenetics, molecular genetics, linkage/association studies. prereq: 3001W or equiv or instr consent

PSY 5138. Adult Development and Aging. (3 cr. ; Student Option; Spring Even Year)
Theories/findings concerning age-related changes in mental health, personality, cognitive functioning, productivity are reviewed/interpreted within context of multiple biological, social, and psychological changes that accompany age. prereq: Junior, Senior or Graduate Student

PSY 5202. Attitudes and Social Behavior. (; 3 cr. ; Student Option; Periodic Spring)
Theory/research on social psychology of beliefs/attitudes. Persuasion principles. prereq: 3201 or instr consent

PSY 5204. Psychology of Interpersonal Relationships. (; 3 cr. ; A-F only; Periodic Fall)
Introduction to interpersonal relationship theory/research findings. prereq: Honors or grad student or instr consent

PSY 5205. Applied Social Psychology. (; 3 cr. ; Student Option; Spring Odd Year)
Applications of social psychology research/theory to domains such as physical/mental health, education, the media, desegregation, the legal system, energy conservation, public policy. prereq: 3201 or grad student or instr consent

PSY 5206. Social Psychology and Health Behavior. (3 cr. ; A-F only; Spring Odd Year)
Survey of social psychological theory/research regarding the processes that shape people's beliefs about health and how these beliefs affect and are affected by their health behavior. Consideration of how theory and evidence regarding these processes informs the development and testing of intervention strategies to promote health behavior change. Prerequisite: Psy 3201

PSY 5207. Personality and Social Behavior. (; 3 cr. ; A-F or Audit; Every Fall)
Conceptual/methodological strategies for scientific study of individuals and their social worlds. Applications of theory/research to issues of self, identity, and social interaction. prereq: 3101 or 3201 or honors or grad student or instr consent

PSY 5501. Vocational and Occupational Health Psychology. (; 3 cr. ; Student Option; Every Spring)
Survey of history, concepts, theories, methods, and findings of vocational/occupational health psychology. Burnout, personality, violence, stressors/stress-relations, counter productive behaviors, coping in workplace. Vocational development/assessment, career decision-making/counseling, person-environment fit. prereq: 3001W or equiv or instr consent

PSY 5701. Employee Selection and Staffing. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Application of psychological research/theory to issues in personnel recruitment/selection and to measurement of job performance. Applying principles of individual differences, psychological measurement to decision making in organizations (recruitment, selection, performance appraisal). Prerequisite: Psy 3001W, Psy 3711 or Instructor Permission

PSY 5703. Psychology of Organizational Training and Development. (; 3 cr. ; Student Option; Every Fall)
Theories, methods, research, and practice of improving performance of individuals at work through adult learning and instruction, including needs analysis, learning philosophy, models of program and instructional design, theory of knowledge and training transfer, learning analytics, and training evaluation. Prerequisites: PSY 3801 or equivalent

PSY 5708. Organizational Psychology. (; 3 cr. ; Student Option; Every Spring)
Psychological causes of behavior in work organizations. Consequences for individual fulfillment and organizational effectiveness. Individual differences, social perception, motivation, stress, job design, leadership, job satisfaction, teamwork, organizational culture. Prereq: Psy 3001W or 3001V and 3711 OR Psy grad

PSY 5862. Psychological Measurement: Theory and Methods. (; 3 cr. ; Student Option; Every Fall)

Types of measurements (tests, scales, inventories) and their construction. Theory/ measurement of reliability/validity. prereq: 3801H or MATH 1271 or grad student

PSY 5865. Advanced Psychological and Educational Measurement. (; 4 cr. ; Student Option; Spring Odd Year)
Topics in test theory. Classical reliability/ validity theory/methods, generalizability theory. Linking, scaling, equating. Item response theory, methods for dichotomous/polytomous responses. Comparisons between classical, item response theory methods in instrument construction. prereq: 5862 or instr consent

PSY 5960. Topics in Psychology. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Special course or seminar. Topics listed in Class Schedule. prereq: PSY 1001, [jr or sr or grad student]

PSY 5993. Research Laboratory in Psychology. (; 3 cr. [max 18 cr.] ; Student Option; Every Fall & Spring)
Laboratory instruction and seminars in faculty research areas. prereq: instr consent, dept consent

Public Affairs (PA)

PA 1005. Great Debates of Our Time: U.S. Policy and Politics. (CIV; 3 cr. ; A-F or Audit; Every Spring)
Topical political/policy debates with prominent government officials/experts. Constitutional crisis over authority/roles of legislative/ executive branches. Visiting lecturers, in-class simulations, readings.

PA 1401. Public Affairs: Community Organizing Skills for Public Action. (CIV; 3 cr. ; A-F only; Every Spring)
Public affairs work, roles of citizens in democratic way of life. Community organizing skills, their importance for public affairs. Negotiations among diverse audiences, understanding different interests, mapping power relationships. Relevant public affairs and governance theory.

PA 3001. Changing the World: Contemporary Public Policy. (3 cr. ; A-F only; Every Spring)
Foundation for understanding the what, who, where, and how of public policy making. These components are explored from different perspectives while delving into questions such as: What is public policy good for? Who decides policy priorities? What effect does public policy actually have in solving public problems? How can we improve public policy making? After successfully completing this course, students will understand the process, structure, and context of policymaking; identify who, how, and what influences the policy process; and apply knowledge of public policy and the policymaking process to a specific policy issue. A strong understanding of the American political system is encouraged.

PA 3002. Basic Methods of Policy Analysis. (SOCS; 3 cr. ; A-F or Audit; Every Fall)
Introduction to policy analysis. Theoretical foundations/practical methods of analysis. Tools for problem definition, data collection/ analysis, presentation techniques, implementation strategies. Multidisciplinary case-study approach.

PA 3003. Nonprofit and Public Financial Management. (3 cr. ; A-F or Audit; Every Fall)
Concepts/tools for project/budget planning. Program analysis. Interpreting financial reports. Identifying/resolving organizational performance issues. Case studies, real-world exercises. prereq: Jr or sr

PA 3481. Cedar Riverside: Where The World Meets MN. (; 2 cr. ; A-F only; Periodic Spring)
The Cedar Riverside Neighborhood; Where the World Meets Minnesota is an immersion course in our Cedar Riverside neighborhood that parallels the immersion experience of study abroad. The course encourages civic engagement and will provide opportunity to learn and work in the Cedar Riverside community while examining questions of leadership, power, cultural diversity and social change. Students will participate in class-based discussion seminars, neighborhood excursions and community work. Throughout the immersion experience, students are challenged to question, think, and respond thoughtfully to current issues facing the Cedar-Riverside community and cultivate leadership skills. Students can expect to gain new frameworks for understanding leadership and civic engagement in a domestic cultural context, deepened skill in identifying complex problems, strategic questioning, reflection and meaning making, as well as consciousness of relationship between self, world and text/ theory.

PA 3852. Social Entrepreneurship & Diplomacy in Ghana. (GP,SOCS; 3 cr. ; A-F only; Every Spring)
This global seminar will take place in Ghana, focusing on visits within the country to the following cities; Accra,Kumasi, Senchi-Ferry, and Elmina/Cape Coast. The course content will focus on social entrepreneurship, diplomacy, and how public policy and social enterprises are helping shape Ghana as one of the most stable emerging countries in West Africa. During the seminar, students will be engaged in lectures that focus on Ghanaian diplomacy, and the evolving role of social entrepreneurship in Ghana. Academic content will focus on meaningful interactions in the form of lectures, panels, site visits, and excursions with speakers from a variety of institutions in Ghana. Speakers will consist of entrepreneurs, policymakers, faculty from a variety of institutions (the University of Ghana Legon, University of Cape Coast, and Ashesi University) and public servants working in Ghana. Cultural excursion locations will align with the location of the academic content, lectures and site visits, which will enable students to develop a deeper understanding of social life and culture in Ghana. Also, the course will examine private and public sectors of higher education, and youth workforce development in Ghana as an impetus for the emergence of social enterprises. Lastly, students will participate in an educational project that investigates youth development and education within rural and urban communities and the role social entrepreneurs are planning on creating innovative solutions for young people to thrive. The course will have some readings that provide students with background information, history or news related to the lectures, site visits, and excursions that will occur during the seminar. Lecture topics include: Conversational Twi (3-day language course) at the University of Ghana Legon; Diplomacy 101 presented by the State Department at the U.S. Embassy in Ghana; traditional governance role in Ghanaian society; educational policy and workforce development in Ghana; women leadership in Markets: Exploration of a hub of entrepreneurship; impact on social entrepreneurship in Ghana panel of local organizations impacting Ghana. General Outcomes: Upon successful completion, student will be able to: Become familiar with diplomacy from an international context, and the role that they play in practicing diplomacy through their participation in the program and exposure to the role of the State Department; build on the knowledge gained from studying social entrepreneurship and how motivated individuals are developing strategies to address societal challenges; discuss diversity of cultures that exists within a country and how traditional and modern governments work together in order to ensure that the country is thriving, preserving its history and traditions; understand diverse philosophies and cultures within and across societies; and develop skills for effective citizenship and lifelong learning.

PA 3969. Survey of Election Administration. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)
Survey of building blocks of election administration, from voter registration to recounts.

PA 3972. Elections and the Law. (; 2 cr. ; Student Option No Audit; Every Fall)
Theories and basic structure of the American legal system. Experience with basic tools and skills for using the law to understand and analyze issues facing election administrators across the nation. Use of election-related and non-election related materials to prepare election administrators for interacting with counsel, legislators and the courts in carrying out their responsibilities.

PA 3973. Strategic Management of Election Administration. (; 2 cr. ; Student Option No Audit; Every Fall)
Strategic management for election administrators in the political environment. Election official tools and challenges. The role of the lawmaking process in budgeting and organizational planning.

PA 3975. Election Design. (; 2 cr. ; Student Option No Audit; Every Spring)
Election administration design principles, including ballot and polling place design and poll worker training materials. Application of principles of field.

PA 3976. Voter Participation. (; 1 cr. ; Student Option No Audit; Every Fall & Summer)
Voter participation issues and challenges including historical survey of voter participation in US and methods to increase voter turnout.

PA 3982. Data Analysis for Election Administration. (; 2 cr. ; Student Option No Audit; Every Spring)
Evidence-based election administration. Collection and analysis of quantitative data to solve problems and identify opportunities for improvement. Emphasis on pre-election forecasting for planning purposes and post-election auditing of election results.

PA 3983. Introduction to Election Security. (; 1 cr. ; Student Option No Audit; Every Fall)
This course will examine the history of cyberattacks on the United States and the American election system, with special attention to the 2016 election cycle. Students will explore the types of cybersecurity threats that exist and strategies to protect against them; understand the roles different levels of government can play in the process, and hear from key officials about the issues raised by the official response to election security threats at the federal, state and local levels as well as in related private sector communities.

PA 3984. Elections Security: How to Protect America?s Elections. (; 2 cr. ; A-F or Audit; Every Spring)
?Elections Security? uses the Russian efforts to influence the 2016 election as a case study to identify the vulnerabilities of US elections (especially state voter registration databases) as well as catalogue new protections. Readings and discussion will focus on best practices and technology options available to the public (social media) and elections professionals (cybersecurity) in guarding against future influence efforts and assuring public confidence in election outcomes. Special focus will be given to describing how local election officials can protect their election technology, most notably those vulnerabilities associated with their voting system and voter registration database. ?Elections Security? will draw heavily on concrete cases and challenges facing election professionals, using government and independent reports and an indepth analysis of new resources created by the US Department of Homeland Security and its collaborations with election professionals.

PA 3990. General Topics in Public Policy. (; 1-3 cr. [max 9 cr.] ; Student Option; Every Spring & Summer)
General topics in public policy.

PA 3991. Independent Study. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study. prereq: instr consent

PA 4101. Nonprofit Management and Governance. (; 3 cr. ; Student Option; Every Fall & Spring)
Managing/governing nonprofit/public organizations. Theories, concepts, real-world examples. Governance systems, strategic management practices, effect of different funding environments, management of multiple constituencies.

PA 4190. Topics in Public and Nonprofit Leadership and Management. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics in public/nonprofit leadership/ management.

PA 4200. Urban and Regional Planning. (; 3 cr. ; Student Option; Every Fall & Spring)
Fundamental principles of urban/regional land-use planning. Introduction to planning theory and its applications. Political-economic context of urban/regional planning.

PA 4414. Child Human Rights: Work and Education. (; 3 cr. ; Student Option; Periodic Spring)
International child labor issues. Options for improving child well-being, including policies/ programs that have potential to affect the lives of millions of children.

PA 4790. Topics in Science, Technology, and Environmental Policy. (; 1-3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics in the field of science, technology, and environmental policy. Topics vary.

PA 4890. Topics in Global Policy. (; 1-3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Topics in global policy. Topics vary.

PA 4997. Topics in Public Affairs & Politics. (; 1-3 cr. ; Student Option; Periodic Fall & Spring)
Topics in public policy, with emphasis on the politics of public affairs. One topic uses the struggles over national security and liberty to explore core aspects of the politics of public affairs - power; institutional development; political communications; and democratic accountability. A rigorous understanding of these political dynamics offers a general approach to policy and public affairs that moves beyond superficial impressions to understanding and engaging in the practical work of public affairs. These tools of analysis are indispensable for making sense of America's constitutional crises as well as other issues. Class sessions are organized around interactive discussions of major Supreme Court decisions, debates in Congress, and other original documents that bring students into direct contact with the competing perspectives of each case, and with penetrating studies of politics.

PA 5001. Intellectual Foundations of Public Action. (1.5 cr. ; Student Option; Periodic Fall & Spring)
Evolution of intellectual approaches that underlie public planning, management, and policy analysis in a democratic society. How decision making is shaped by knowledge/ values. Role of rationality. Conceptual, descriptive/normative, and structure/process approaches.

PA 5002. Introduction to Policy Analysis. (1.5 cr. ; A-F or Audit; Every Fall & Spring)
Process of public policy analysis from problem structuring to communication of findings. Commonly used analytical methods. Alternative models of analytical problem resolution.

PA 5003. Introduction to Financial Analysis and Management. (1.5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Finance/accounting concepts/tools in public/ nonprofit organizations. Fund accounting. Balance sheet/income statement analysis. Cash flow analysis. Public/nonprofit sector budgeting processes. Lectures, discussions. Cases. prereq: Public policy major/minor or major in development practice, public affairs or liberal studies or grad nonprofit mgmt cert or instr consent

PA 5004. Introduction to Planning. (3 cr. ; A-F or Audit; Every Fall)
History/institutional development of urban planning as profession. Intellectual foundations, planning theory. Roles of urban planners in U.S./international settings. Scope, legitimacy, limitations of planning/planning process. Issues in planning ethics/settings of diverse populations/stakeholders. prereq: Major/minor in urban/regional planning or instr consent

PA 5011. Management of Organizations. (3 cr. ; A-F or Audit; Every Fall & Spring)
Challenges facing higher-level managers in public and nonprofit organizations in mixed economy and democratic republic. Distinctive features of public and nonprofit management, skills necessary for effective management, manager's role as creator of public value. Lectures, case discussions.

PA 5012. The Politics of Public Affairs. (3 cr. ; A-F or Audit; Every Spring)
Stages of policy making from agenda setting to implementation. Role and behavior of political institutions, citizens, social movements, and interest groups. Concepts of political philosophy. Theories of state. Team taught, interdisciplinary course. Small discussion sections.

PA 5013. Law and Urban Land Use. (1.5 cr. ; A-F or Audit; Every Fall)
Role of law in regulating/shaping urban development, land use, environmental quality, local/regional governmental services. Interface between public/private sector. prereq: Major or minor in urban/regional planning or instr consent

PA 5021. Microeconomics for Policy Analysis. (3 cr. ; A-F or Audit; Every Fall)
Introduction to tools useful for public policy. Intermediate microeconomics.

PA 5022. Applications of Economics for Policy Analysis. (; 1.5-3 cr. [max 9 cr.] ; A-F or Audit; Every Spring)
Application of economic reasoning to a wide range of contemporary public policy issues. The following topically-focused courses also fulfill the MPP economics requirement: PA 5431: Public Policies on Work and Pay, PA 5503: Economics of Development, PA 5521: Development Planning and Policy Analysis, PA 5722: Economics of Natural Resource and Environmental Policy, and PA 5805: Global Economics. prereq: 5021 or equiv

PA 5031. Statistics for Public Affairs. (4 cr. ; A-F or Audit; Every Fall)

Basic statistical tools for empirical analysis of public policy alternatives. Frequency distributions, descriptive statistics, elementary probability/probability distributions, statistical inference. Estimation/hypothesis testing. Cross-tabulation/chi-square distribution. Analysis of variance, correlation. Simple/ multiple regression analysis.

PA 5032. Applied Regression. (2 cr. ; A-F or Audit; Every Spring)
Bivariate/multivariate models of regression analysis, assumptions behind them. Problems using these models when such assumptions are not met.

PA 5033. Multivariate Techniques. (2 cr. ; A-F or Audit; Every Spring)
Use of bivariate and multivariate statistical approaches for analyzing and evaluating public affairs issues and the assumptions behind the analytical approaches. Designed to help students read, understand, interpret, use, and evaluate empirical work used in social sciences by policy analysts and policy makers. prereq: [5032 or 5044 or equiv] or instr consent. May fulfill stats requirements in other programs.

PA 5035. Survey Research and Data Collection. (1.5 cr. ; A-F only; Every Spring)
Introduction to survey research methods. Emphasizes applications to policy/applied research. Research design choices (e.g., descriptive, experimental, case studies), sampling, variable specification, measurement. Conducting interviews, self-administered questionnaires. Qualitative techniques.

PA 5041. Qualitative Methods for Policy Analysts. (4 cr. ; A-F only; Every Fall)
Qualitative analysis techniques, examples of application. Meet with researcher. Hands-on experience in designing, gathering, analyzing data.

PA 5042. Urban and Regional Economics. (2 cr. ; A-F only; Every Spring)
Evaluation of city existence/growth using economics. Economic forces in development of cities. Economic analysis of urban areas/ land market. Economic analysis of planning issues in land use, transportation, housing, environment. prereq: [Major or minor in urban and regional planning, microeconomics course] or instr consent

PA 5043. Economic and Demographic Data Analysis. (2 cr. ; A-F only; Every Spring)
Economic/demographic data analysis techniques for planning. Exposure to most important data sources. Conceptual understanding of range of methods/hands-on experience in applying these methods. prereq: Major or minor in urban/regional planning or instr consent

PA 5044. Applied Regression, Accelerated. (2 cr. ; A-F only; Every Spring)
Bivariate/multivariate models used in regression analysis, including assumptions behind them/problems that arise when assumptions are not met. Course covers similar topics as PA 5032 but uses more mathematical notation/delves deeper into theory/application of methods. prereq: [5031 or equiv} or instr consent

PA 5045. Statistics for Public Affairs, Accelerated. (4 cr. ; A-F or Audit; Every Fall)
Introduces a range of quantitative tools that are commonly used to inform issues in public affairs. The course provides an introduction to descriptive statistics, probability, and statistical inference, with an emphasis on the ways in which quantitative tools are applied to a diverse range of practical policy questions. PA 5045 is an accelerated treatment of applied statistics for public affairs and serves as a more mathematically and conceptually rigorous alternative to PA 5031.

PA 5051. Public Affairs Leadership. (; 2 cr. ; A-F only; Every Fall)
Leadership concepts, tools, and strategies in a personal, community, and organizational context for mid-career students. prereq: Major in public affairs (cohort) or public affairs certificate (cohort); 5051-5052 must be taken in same academic yr

PA 5052. Public Affairs Leadership in a Diverse World. (; 2 cr. ; A-F only; Every Spring)
Continues 5051. Leadership concepts, tools, and strategies in diverse settings for mid-career students. prereq: Major in public affairs (cohort) or public affairs certificate (cohort); 5051-5052 must be taken in same academic yr

PA 5053. Policy Analysis in Public Affairs. (; 2 cr. ; A-F only; Every Fall)
Process of public policy and program analysis, including problem formulation, program design and implementation. Opportunity to draw upon published research and conduct field-based research to understand implementation conditions. Professional communications, including writing of memos, requests for proposals, and implementation briefs, are stressed. prereq: Major in public affairs (cohort) or public affairs certificate (cohort); 5053-5054 must be taken in same academic yr

PA 5054. Program Design and Implementation Analysis. (; 2 cr. ; A-F only; Every Spring)
Continues 5053. Process of public policy and program analysis, including problem formulation, program design and implementation. Opportunity to draw upon published research and conduct field-based research to understand implementation conditions. Professional communications, including writing of memos, requests for proposals, and implementation briefs, are stressed. prereq: Major in public affairs (cohort) or public affairs certificate (cohort); 5053-5054 must be taken in same academic yr

PA 5055. Qualitative Research Methods and Analysis. (2 cr. ; A-F only; Every Fall)
Problem-based learning of analytical reasoning through social science research methods. Systematic review and literature review. Qualitative research including interviews, focus groups, and analysis. Research proposal. prereq: Major in public affairs or public affairs certificate, [5055-5056 must be taken in same academic yr]

PA 5056. Quantitative Research Methods and Analysis. (2 cr. ; A-F only; Every Spring)
Problem-based learning to analytical reasoning through social science research methods. Frequency distributions, descriptive statistics, elementary probability, statistical inference. Hypothesis testing. Cross-tabulation, analysis of variance, correlation. Simple regression analysis. prereq: Major in public affairs or public affairs certificate, [5055-5056 must be taken in same academic yr]

PA 5080. Capstone Preparation Workshop. (; 1 cr. ; S-N only; Every Fall, Spring & Summer)
Project management, qualitative research, and critical framework to complete Capstone course. Students write draft of client project group norms and client contract.

PA 5081. Working in Teams: Crossing Disciplines and Learning from Difference. (0.5 cr. ; S-N only; Every Fall)
Principles and skills necessary to create high-performing multi-disciplinary and multi-cultural teams.

PA 5101. Management and Governance of Nonprofit Organizations. (; 3 cr. ; Student Option; Every Fall)
Theories, concepts, and real world examples of managerial challenges. Governance systems, strategic management practices, effect of funding environments, management of multiple constituencies. Types of nonprofits using economic/behavioral approaches. prereq: Grad student or instr consent

PA 5102. Organization Performance and Change. (; 3 cr. ; Student Option; Spring Odd Year)
Measuring outcomes of mission-driven organizations. Theory/operation of organizations from structural/cultural/symbolic perspectives. Development/use of performance information. Organizational assessment, structure, change. Mission, vision, strategy, systems thinking. Evaluation of change efforts. prereq: Grad student or instr consent

PA 5103. Leadership and Change. (; 1.5-3 cr. ; Student Option; Every Fall)
Models of change/leadership. How leaders can promote personal, organizational, and societal change. Case studies, action research. Framework for leadership and change.

PA 5104. Strategic Human Resource Management. (; 3 cr. ; A-F or Audit; Every Fall)
Theory/practice of developing, utilizing, and aligning human resources to improve culture/ outcomes of nonprofit/public organizations. HR strategy, individual diversity, leadership, selection, training, compensation, classification, performance appraisal, future HR practices. prereq: Grad student or instr consent

PA 5105. Integrative Leadership: Leading Across Sectors to Address Grand Challenges. (; 3 cr. ; Student Option No Audit; Every Fall)
Examines how challenges can be addressed through the shared leadership of government, business, and nonprofit sectors. Multi-sector leadership and related governance and management challenges explored from a variety of perspectives. The lens of the

course moves to the collaboration itself after a focus on the individual, looking at techniques and qualities of successful teams, including those composed of diverse individuals or organizations. Students apply what they learn individually and in teams through in-class exercises and a final team project. Taught by a team of interdisciplinary faculty and considers different contexts, forms and specific examples of multisector leadership to enable transformative action to tackle significant societal issues and achieve lasting change.

PA 5106. Government, Ethics and the Public Will. (1-3 cr. ; Student Option No Audit; Every Spring)
Links between core ethical values/formation documents that have shaped democracy in United States or student's homeland. Ethics/agency. Ethics in context of leadership development. Compose narrative of ethical practice. prereq: Grad student or instr consent

PA 5107. Leadership, Reflective Practice, and Critical Theory: A Practicum. (; 2 cr. ; Student Option; Every Fall)
For students immersed in a cultural shift, organization, or leadership form who wish to learn how to negotiate international, cross-cultural/political contradictions. Critical approach to understanding adult learning. How to perceive and challenge dominant ideology, unmask power, contest hegemony, overcome alienation, and practice democracy. prereq: Grad student or instr consent

PA 5108. Board leadership development. (; 1 cr. ; S-N only; Every Fall & Spring)
Nonprofit board governance. Governance models, roles/responsibilities, ethics/dynamics. Current research/concepts along with students' current board experiences to illuminate challenges/explore solutions that build board leadership competencies. prereq: Grad student or instr consent

PA 5111. Financing Public and Nonprofit Organizations. (3 cr. ; Student Option No Audit; Every Spring)
Financial statements/theories, terminology, principles, skills to prepare solutions for public/ nonprofit organization financing. Analysis of operating/capital budgets, short-term/long-term debt management, retirement financing, endowment investing. Tools/techniques. prereq: 5003 or instr consent

PA 5112. Public Budgeting. (; 3 cr. ; Student Option; Every Spring)
Budget processes in legislative/executive branches of federal, state, and local government. Program planning evaluation/ administration. Techniques of budget/program analysis. Use of budget as policy/management tool. Analysis of fund flows within/among governments. prereq: Grad student or instr consent

PA 5113. State and Local Public Finance. (; 3 cr. ; Student Option; Every Spring)
Theory/practice of financing. Providing public services at state/local level of government. Emphasizes integrating theory/practice, applying materials to specific policy areas, and documenting wide range of institutional arrangements across/within the 50 states. prereq: Grad or instr consent

PA 5114. Budget Analysis in Public and Nonprofit Orgs. (1.5 cr. [max 3 cr.] ; Student Option; Every Spring)
Techniques, terminology, concepts and skills for developing and analyzing operating and capital budgets in public and nonprofit organizations. Budget analysis using case studies, problem sets, and spreadsheets. Time value of money, cost-benefit analysis, break-even analysis, sensitivity analysis, and fiscal analysis. prereq: PA 5003

PA 5116. Financing Public and Nonprofit Organizations. (1.5 cr. ; Student Option; Every Spring)
Financial resource management for public and nonprofit organizations. Short-term and long-term debt management, retirement financing, and endowment investing. Conceptual frameworks and analytical techniques applied to real-world problems. Financial management in context of national and regional economies. prereq: PA 5003; credit will not be granted if credit already received for: PA 5111

PA 5122. Law and Public Affairs. (; 3 cr. ; Student Option; Every Spring)
Overview of evolution of American legal system. Role of courts, legislatures, and political actors in changing law. How law is used to change public policy. prereq: Grad or instr consent

PA 5123. Philanthropy in America: History, Practice, and Trends. (; 1.5-3 cr. ; Student Option; Periodic Fall)
Theory/practice of philanthropy. Foundation/ corporate/ individual giving. History/economic structure/dynamics. Models of philanthropy, components of grant making/seeking. Current debates, career options.

PA 5132. Mediation Training. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Creating an arena for mediation. Skills/ expectations needed to mediate disputes between individuals, among groups: balanced (peer or colleague), imbalanced (power differentials). Role playing, group debriefing, critique. Cases. prereq: Grad or instr consent

PA 5135. Managing Conflict: Negotiation. (3 cr. ; Student Option; Every Fall)
Theories and frameworks used in negotiations. Navigating diverse audiences and an increasingly complex world. Negotiation in various arenas. Opportunities to practice skills and learn from experts. Structured exercises on issues such as compensation, union conflicts and international development. Culture, emotions, gender and ethics in negotiation.

PA 5136. Group Process Facilitation for Organizational and Public/Community Engagement. (1 cr. ; Student Option No Audit; Every Summer)
Group process facilitation components, theories, tools, techniques. Facilitator?s role in group goals and processes. Facilitation in public policy. Cross-cultural challenges. Topics may include meeting management, group decision-making, conflict, participatory leadership, and other tools.

PA 5137. Project Management in the Public Arena. (1.5 cr. [max 3 cr.] ; Student Option No Audit; Every Spring)
Project management and leadership strategies for implementing public policy, including new or revised government programs, public works, and regulations. Use of project management concepts, principles, and tools, including project definition, scoping, planning, scheduling (using the critical path method), budgeting, monitoring, staffing, and managing project teams. Application of "agile" and "extreme" project management in situations of complexity and uncertainty, including those due to the scrutiny and expectations of elected officials, the media, citizens, and other stakeholders.

PA 5144. Social Entrepreneurship. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Introduction to field of social entrepreneurship. Prepares current/future managers/leaders to create, develop, lead socially entrepreneurial organizations/initiatives. prereq: Grad student or instr consent

PA 5145. Civic Participation in Public Affairs. (; 3 cr. ; A-F only; Every Spring)
Critique/learn various approaches to civic participation in defining/addressing public issues. Readings, cases, classroom discussion, facilitating/experiencing engagement techniques. Examine work of practitioner, design engagement process.

PA 5151. Organizational Perspectives on Global Development & Humanitarian Assistance. (3 cr. ; A-F only; Every Fall)
Organizational analysis of international development and humanitarian assistance, including perspectives from sociology, political science, psychology, public administration, and management. Examines efforts of multiple organizational players, including NGOs, governments, bi-lateral and multi-lateral organizations, corporations, foundations, and international organizations. Critical analysis of aid organizations, especially regarding ways in which they reflect and create power and privilege, the manner in which individuals? needs and desires interact with, support, or challenge the needs of the organization, and how all of this is influenced by forces outside the boundary of the organization. Students practice developing actionable recommendations to improve the effectiveness of international aid organizations in the context of multiple (and often contested) understandings of global development needs and conflicting stakeholder demands. Readings, class discussions, mini-lectures, simulations, case analyses, group projects, oral presentations, memo writing, opinion writing.

PA 5152. Leadership to Address Global Grand Challenges. (1.5 cr. ; Student Option No Audit; Every Spring)
Global grand challenges are novel, emergent, complex, and beyond the resources of any single sector to address. Skills-based course that introduces participants to integrative leadership strategies effective in addressing such challenges, with specific focus on leadership practices that foster collective action across diverse groups of people.

PA 5161. Redesigning Human Services. (3 cr. ; A-F or Audit; Every Fall)
This course provides an in-depth examination of the history and institutions delivering human services in the United States, with an emphasis on how human-centered design can help improve service provision and outcomes. It explores how public, nonprofit, and philanthropic structures create unique operational realities and cultures that must be navigated to lead change across institutional boundaries. It also systematically investigates contributors to disparities in the human services system, particularly race. The use of frameworks such as human-centered design, human services value curve, and an equity lens will help us on this exploration. Course learning materials take students through a design process to highlight strategies for systems change and improvement grounded in outcomes. Design processes are iterative and involve understanding and engaging the people and context in problem solving. Through project-based learning approach, students will understand the various constraints that need to be navigated in design: feasibility, viability, and desirability. Students gain experience using design to help appreciate these constraints and develop strategies for overcoming them.

PA 5162. Public Service Redesign Workshop. (; 3 cr. ; A-F only; Every Spring)
Public service delivery innovation and redesign in health and human services fields to improve outcomes. Study and application of theories of organizational development, leadership, and system change. Social system dynamics analysis. Engaging diverse stakeholders. Effects and influence of implicit bias on current and redesigned efforts. Models and tools for public service redesign.

PA 5180. Topics in Executive Leadership. (; 0.5-3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Selected topics in executive leadership. prereq: instr consent

PA 5190. Topics in Public and Nonprofit Leadership and Management. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics.

PA 5204. Urban Spatial and Social Dynamics. (3 cr. ; Student Option; Every Spring)
Behavioral theories of internal spatial arrangement, functioning, characteristics of cities at macro level/how they produce system of cities. Factors influencing urban spatial structure over time. Urban form, land use/rent. Spatial expression of economic, social, political forces. prereq: urban/regional planning Major/minor in or public affairs PhD or instr consent

PA 5205. Statistics for Planning. (4 cr. ; A-F only; Every Fall)
Basic statistical tools for empirical analysis in urban and regional planning, including descriptive statistics, frequency distributions, elementary probability theory, research design and sampling, statistical inference, hypothesis testing, cross-tabulation/chi-square distribution, correlation, and simple/multiple regression analysis.

PA 5209. Urban Planning and Health Equity. (; 3 cr. ; Student Option; Every Spring)
This interdisciplinary course examines the causes and consequences of place-based health disparities in cities, explores how health disparities can be mitigated and exacerbated by urban planning decisions, and introduces best practices in urban planning for achieving community health equity. The course will involve extensive readings, guest lectures, field-based assignments, data-collection activities, and local community involvement. Twin Cities has one of the largest disparities in health outcomes in the nation and local practitioners are pioneering new urban planning solutions to reduce place-based health disparities. The course will utilize this location advantage and use the region as an immersive learning environment. Students are expected to apply knowledge and skills learned in the class locally in the Twin Cities region. At the end of the course, students will be able to: Understand the historical foundations, current trends and challenges, and international perspectives in connecting urban planning to health equity issues; investigate how various planning sectors and urban environment dimensions, including land use, transportation, open space, housing, food systems, and community social capital, interact to affect health disparities in cities; critically evaluate how existing planning processes and decisions respond to the needs of vulnerable populations and contribute to health equity; and develop skills to engage communities and identifying community-sensitive solutions for reducing place-based health disparities. Fulfills a requirement for graduate Health Equity Minor (http://www.sph.umn.edu/academics/minor/health-equity/).

PA 5211. Land Use Planning. (3 cr. [max 6 cr.] ; A-F only; Every Fall)
Physical/spatial basis for land use planning at community/regional level. Role of public sector in guiding private development. Land use regulations, comprehensive planning, growth management, innovative land use planning/policies. prereq: Major or minor in urban/regional planning or instr consent

PA 5212. Managing Urban Growth and Change. (; 3 cr. ; Student Option; Fall Even Year)
Theory/practice of planning, promoting, and controlling economic growth/change in urban areas. Economic development tools available to state/local policymakers, historic context of their use in the United States. legal, social, and economic implementation constraints. Interactions among economic, social, and demographic trends. prereq: Grad student or instr consent

PA 5213. Introduction to Site Planning. (; 3 cr. ; Student Option; Every Spring)
Analyzing/preparing graphic plans for development or redevelopment of property. Site planning issues, process, opportunities, details, and techniques. Hands-on preparation of a site plan. Site visits, lectures, research, presentations, exam, in-class exercises. prereq: Grad student or instr consent

PA 5215. Computer Applications in Land Use Planning. (; 3 cr. ; Student Option; Every Spring)
Geographical information system software, simulation modeling of land use/development, 3D software, the Internet. Project applications in citizen participation/decision-making. Meets weekly in mostly lab setting. prereq: Grad student or instr consent

PA 5216. Digital Graphics for Planning and Public Policy Makers. (1 cr. ; A-F only; Every Fall & Spring)
Concepts, tools, and techniques of graphic representation software tools commonly used in urban planning and basic fundamentals of information design for public policy (InDesign, AutoCAD, Illustrator, PhotoShop). Workflow among programs and production of posters. Course project utilizes individual and group work.

PA 5221. Private Sector Development. (; 3 cr. ; Student Option No Audit; Every Spring)
Roles of various participants in land development. Investment objectives, effects of regulation. Overview of development process from private/public perspective.

PA 5231. Transit Planning and Management. (; 3 cr. ; Student Option; Every Fall)
Principles/techniques related to implementing transit systems. Historical perspective, characteristics of travel demand, demand management. Evaluating/benchmarking system performance. Transit-oriented development. Analyzing alternative transit modes. System design/finance. Case studies, field projects. prereq: Grad student or instr consent

PA 5232. Transportation Policy, Planning, and Deployment. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Development of transportation policy, making of transportation plans, deployment of transportation technologies. Lectures, interactive case studies, role playing.

PA 5233. Sustainable Transportation. (3 cr. ; A-F or Audit; Spring Odd Year)
Concepts of sustainability in movement of people/goods in cities. Techniques/best practices/methods for planning/implementing interventions to improve social, economic, environmental sustainability of communities. prereq: Grad or instr consent

PA 5234. Urban Transportation Planning and Policy. (3 cr. ; A-F or Audit; Every Spring)
This course will integrate key theories and practices, traditional and emerging policy instruments, and techniques for urban and transportation planning. The goal is to introduce students to essential concepts, influential thinkers, and important debates associated with the land use-transportation connection as a foundation for both professional and academic work. By the end of the course, students will be able to comprehend urban transportation planning process and demand forecasting; the theories and empirical evidence on land use and transportation interactions; land use and transportation policy instruments and their effectiveness; and land use and transportation planning in developing countries.

PA 5242. Environmental Planning, Policy, and Decision Making. (; 3 cr. ; A-F only; Periodic Spring)
Theory and practice. Ethical, legal, and institutional frameworks relative to a range of environmental issues. Innovative environmental decision making informed by collaboration, conflict resolution, adaptive management, and resilience thinking. prereq: Grad or instr consent

PA 5243. Environmental Justice in Urban Planning & Public Policy. (3 cr. ; A-F or Audit; Every Spring)
Environmental racism can be defined as policies and practices that result in communities of Black, Indigenous and other people of color (BIPoC communities) being overexposed to environmental harms and being denied access to environmental goods. The environmental justice (EJ) movement in the United States was birthed in the 1980s with the aim of ending environmental racism. Early EJ activism was led by Black rural communities protesting the disproportionate presence of toxic waste facilities in their neighborhoods and Latinx migrant farmworkers who were overexposed to harmful pesticides. Central to the course is the understanding that structural racism, in the form of social, political, and economic forces, has denied BIPoC individuals and communities their rights to live in clean environments and access natural resources that allow communities to build and maintain their physical, mental, emotion, and fiscal health. Although the course focuses on race and racism, it takes as axiomatic that racism is intertwined with other systems of oppression including, but not limited to, sexism, classism, ableism, homophobia, and transphobia. The course begins by tracing the history of the EJ movement and unpacking the terms ?racism? and ?justice.? The main body of the course will focus on a series of issues that EJ scholars and activists address including pollution, greening, transportation, disasters, and climate change. The course ends with discussions and reflections on our roles, responsibilities and possibilities as public policy and planning scholars, researchers and practitioners to work towards ending environmental racism and achieving EJ for all. The required ?readings? for the course will include academic journal articles, news stories, governmental policies, podcasts, videos, poetry, and short stories. This will allow us to understand the theoretical and methodological approaches to EJ activism and research and explore popular and creative forms of knowledge about EJ which will add depth to our understanding and analysis of relevant plans and policies. Our time together in the classroom will primarily be a mix of lectures, group discussions, in-class exercises, and occasionally guest speakers. While we will reflect on some international issues and materials, we will largely focus on EJ in the United States.

PA 5251. Strategic Planning and Management. (; 3 cr. ; Student Option No Audit; Periodic Spring)
Theory and practice of strategic planning and management for public and nonprofit organizations and networks. Strategic planning process, management systems; stakeholder analyses. Tools and techniques such as purpose expansions, SWOT analyses, oval mapping, portfolio analyses, and logic models.

PA 5253. Designing Planning and Participation Processes. (3 cr. ; A-F only; Every Fall)
Theory/practice of design, implementation, evaluation of planning/participation processes. Types of planning. Stakeholders, including underrepresented groups. Costs/benefits of participation. Participant roles. Planning/participation tools/techniques. prereq: Major or minor in urban/regional planning or instr consent

PA 5261. Housing Policy. (; 3 cr. ; A-F or Audit; Every Spring)
Institutional/environmental setting for housing policy in the United States. Competing views of solving housing problems through public intervention in the market. Federal/local public sector responses to housing problems. prereq: Grad or instr consent

PA 5262. Neighborhood Revitalization Theories and Strategies. (3 cr. ; Student Option No Audit; Every Fall)
Policymaking/politics of planning in housing, community development, social policy. Connecting policy to local/regional politics. Role of institutional decision-making structures on policy outcomes. Importance of citizens, social movements, interest groups in policymaking process.

PA 5271. Geographic Information Systems: Applications in Planning and Policy Analysis. (; 3 cr. ; Student Option; Every Fall)
Introduction to GIS. Applications in public planning and policy analysis. Operational skills in GIS software. Mapping analysis of U.S. Census material. Local/state government management/planning. Spatial statistical analysis for policy/planning. prereq: Major in urban/regional planning or instr consent

PA 5281. Immigrants, Urban Planning and Policymaking in the U.S.. (3 cr. ; A-F or Audit; Every Fall)
Social, political, economic experiences of contemporary U.S. immigrants. Draws from sociology, economics, demography, political science, public affairs. Local government policies/plans. Cities/suburbs as contexts for immigrants. Interactions between immigrant communities/urban planners/policymakers. prereq: Grad student or instr consent

PA 5290. Topics in Planning. (; 0.5-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics.

PA 5301. Population Methods & Issues for the United States & Global South. (3 cr. ; Student Option; Periodic Spring)
Basic demographic measures/methodology. Demographic transition, mortality, fertility. Perspectives on nonmarital fertility, marriage, divorce, cohabitation. Cultural differences in family structure, aging, migration, refugee movements, population policies. Discussion of readings. prereq: Grad student or instr consent

PA 5311. Program Evaluation. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Principal methods, primary applications of evaluation research as applied to policies/programs in health/human services, education, or the environment. Conducting evaluations. Becoming a critical consumer of studies. prereq: Grad student or instr consent

PA 5390. Topics in Advanced Policy Analysis Methods. (; 1-4 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics in advanced policy analysis methods.

PA 5401. Poverty, Inequality, and Public Policy. (; 3 cr. ; Student Option; Every Fall)
Nature/extent of poverty/inequality in the United States, causes/consequences, impact of government programs/policies. Extent/causes of poverty/inequality in other developed/developing countries. prereq: Grad or instr consent

PA 5405. Public Policy Implementation. (; 3 cr. ; A-F or Audit; Every Fall)
Theory, tools, and practice of the implementation of public policy, particularly in areas involving public, private, and nonprofit organizations. Analytical approach focuses on multiple levels in policy fields to pinpoint and assess implementation challenges and levers for improvement.

PA 5412. Aging and Disability Policy. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Policy debates concerning populations that are aging or disabled. Students learn/practice analyses in context of important health, social, and economic policy debates. Readings on current theory/evidence. prereq: Grad or instr consent

PA 5413. Early Childhood and Public Policy. (1.5-3 cr. ; Student Option; Every Fall)
State/federal/int'l policies/legislation touching first 5 years of child's life. Family, community, institutional roles in promoting children's social/cognitive/emotional development. Health, mental health, poverty, special needs, economic/social justice. Part of Early Childhood Pol cert. prereq: Grad or instr consent

PA 5414. Child Human Rights: Work and Education. (; 3 cr. ; Student Option; Periodic Spring)
International child labor issues. Options for improving child well-being, including policies/programs that have potential to affect the lives of millions of children. prereq: Grad student or instr consent

PA 5415. Economics of Early Childhood Development. (1.5-3 cr. ; A-F only; Periodic Fall)
Early childhood development (ECD) is examined from an economic perspective. Course focuses on the role of government in helping to promote ECD for purposes of social welfare and economic growth. Readings include studies of brain development as well as longitudinal studies of ECD. Students will become familiar with the importance of rigorous impact evaluations and the use of cost-benefit analysis as a tool for efficient resource allocation of child policies.

PA 5421. Racial Inequality and Public Policy. (; 3 cr. ; Student Option No Audit; Periodic Fall & Spring)
Historical roots of racial inequality in American society. Contemporary economic consequences. Public policy responses to racial inequality. Emphasizes thinking/analysis that is critical of strategies offered for reducing racism and racial economic inequality. prereq: Grad or instr consent

PA 5422. Diversity and Public Policy. (; 3 cr. ; A-F only; Periodic Fall)
Economics of diversity. Business/public administration cases for workplace diversity. Value of cultural competency in public/nonprofit organizations. Current policy debates on race, ethnicity, gender, sexual identity, and disability. prereq: Grad student or instr consent

PA 5426. Community-Engaged Research and Policy with Marginalized Groups. (; 3 cr. ; Student Option; Every Spring)
Marginalized populations tend to be viewed as objects of social policy, passive victims, or a cause of social problems. Processes of marginalization we will explore in this class include: structural racism, colonization, economic exclusion and exploitation, gender bias, and more. Policy and research are typically driven by mainstream/dominant society members with little direct knowledge about the real lives of people on the margins. This can lead to misguided actions, misunderstandings, paternalism, unintended negative consequences, and further marginalization and/or stigmatization. In this course, we will learn about community-engaged research methodologies such as participatory action research (PAR) and community-based participatory research (CPBR). We will use case studies of sex trafficking, housing, and youth work to explore the challenges, rewards, and ethical implications of these community-engaged approaches to research and policy-making. Instructors and students in the course will work together on a real-world research and policy challenge so that students contribute to ongoing work in the field in real-time.

PA 5431. Public Policies on Work and Pay. (3 cr. ; Student Option; Every Spring)
Public policies affecting employment, hours of work, and institutions in labor markets. Public programs impacting wages, unemployment, training, collective bargaining, job security, and workplace governance. Policy implications of the changing nature of work. prereq: [[PA 5031 or equiv], grad student] or instr consent

PA 5441. Education Policy and the State Legislature. (; 3 cr. ; Student Option; Periodic Fall)
How Minnesota legislature decides K-12 issues. Implications for higher education. How to increase one's influence in process. Discussions with persons who influence statewide educational policy. Presentations. Field trip to state legislature. prereq: Grad or instr consent

PA 5442. Education Law and Policy. (3 cr. ; Student Option No Audit; Periodic Fall)
Education law and policy with focus on elementary/secondary. Topics include governance; interplay of federal, state and local law and policy; education redesign; intersection with workforce development; reform efforts; desegregation; achievement gap; role of teacher unions; and finance. Early childhood education discussed in connection with K-12 issues. Case studies include recently enacted legislation in multiple states.

PA 5451. Immigration, Health and Public Policy. (; 3 cr. ; A-F only; Every Fall & Spring)
How to access demographic, health, and background information on US immigrants. Characteristics and health needs of immigrants. Designing culturally competent health programs. How to advocate for needed policy changes to promote immigrant health and wellbeing. Community visits required. Online course.

PA 5452. Immigration and Public Policy. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How to employ an analytical framework to analyze a current immigration policy proposal. Topics vary (e.g., president's guest worker proposal, democratic alternative proposals). prereq: Grad student or instr consent

PA 5480. Topics in Race, Ethnicity, and Public Policy. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Link between race/ethnicity and public policy. How to identify/measure racial/ethnic disparities and their historical/cultural origins and policy impacts and to craft politically feasible remedies. Topics may include criminal justice, housing, child welfare, and education. prereq: Jr or sr or grad student or instr consent

PA 5490. Topics in Social Policy. (; 1-4 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics.

PA 5501. Theories and Policies of Development. (; 3 cr. ; Student Option; Every Fall)
What makes some countries wealthier than others, one group of people healthier and more educated than another? How does the behavior of rich nations affect poor nations? Origins of development thought, contemporary frameworks and policy debates. Economic, human, and sustainable development. prereq: Grad student or instr consent

PA 5503. Economics of Development. (3 cr. ; A-F or Audit; Every Fall)
Economic growth, inequality, poverty, rural/urban labor markets, risk/insurance. Investments in human capital, credit markets, gender/household economics, governance/institutional issues. Microfinance, conditional cash transfers, labor/education policies. prereq: PA 5501 or concurrent registration is required (or allowed) in PA 5501

PA 5511. Community Economic Development. (; 3 cr. ; Student Option; Every Fall)
Contexts/motivations behind community economic development activities. Alternative strategies for organizing/initiating economic development projects. Tools/techniques for economic development analysis/planning (market analysis, feasibility studies, development plans). Implementation at local level. prereq: Grad or instr consent

PA 5512. Workforce and Economic Development. (3 cr. ; A-F or Audit; Spring Even Year)
Economic and workforce development examined from a U.S. context, exploring how rural and urban regional economies grow, why industries/employers locate where they do, and how workers decide where to live and work. Government and economic development practices related to businesses and innovation will also be addressed. prereq: Grad or instructor consent

PA 5521. Development Planning and Policy Analysis. (; 4 cr. ; Student Option; Every Spring)
Techniques of development planning/policy analysis at national, regional, and project levels. Effects of external shocks and government interventions on national/regional economies. Macroeconomic modeling, input-output analysis, social accounting matrices/multipliers, project evaluation. prereq: 5031 or equiv recommended or instr consent

PA 5522. International Development Policy, Families, and Health. (; 3 cr. ; Student Option; Periodic Spring)
Implications of paid/unpaid labor for development policy, using household as prism. Legal/cultural use of property rights. Financial effects of ill health. Caregiving. Work-family conflict, policies that alleviate it. Role of gender. Qualitativequantitative methods. Readings, lectures, discussions. prereq: Grad student or instr consent

PA 5561. Gender and International Development. (; 3 cr. ; Student Option; Periodic Spring)
Women and men are affected differently by development and participate differently in policy formulation and implementation. Gender-sensitive perspective. Historical, political context. Global South. Policy, practice, and experience (theory and measurement; international, national, local stakeholders; effects of policy and practice on development). prereq: Grad or instr consent

PA 5590. Topics in Economic and Community Development. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics.

PA 5601. Global Survey of Gender and Public Policy. (3 cr. ; Student Option; Periodic Fall)
Introduction to the key concepts and tools necessary for gender policy analysis. Survey of the major findings in the field of gender and public policy in policy areas such as poverty alleviation, health, international security, environment and work-family reconciliation. Scope includes local, national, and global policy arenas as well as exploration of gender and the politics of policy formulation.

PA 5621. Board Service in Women and Public Policy. (; 1 cr. ; S-N only; Periodic Fall)

Students serve as full members of a board of directors for a women's movement organization. Organizational leadership. How to be an effective board member. Twin Cities feminist nonprofit organizations. prereq: instr consent

PA 5622. GAINS: Gender and Intersectional Network Series, Leadership Workshop I. (0.5-1 cr. ; S-N only; Fall Odd Year)
GAINS: Gender and Intersectional Network Series, Leadership Workshop prepares students with the skills to lead effectively and challenge institutional norms and practices that perpetuate disparities based on gender, race and other structural inequalities. Women, racially marginalized individuals, and LGBTI-identified individuals are still disproportionately underrepresented in leadership roles in public, private, and nonprofit institutions in spite of high rates of educational attainment and equal opportunity legislation. Women of color and indigenous women face even greater obstacles to advancement compared to white women. Barriers to diverse leadership today stem less from overt discrimination and more from ?second generation? forms of bias ? often invisible but still powerful cultural beliefs as well as workplace structures and practices. Achieving leadership parity thus entails individual, collective and institutional change. Course pedagogy includes case studies, group discussions, self-reflection and simulations that have been proven to have a lasting impact on individual leaders in developing their own leadership capacity. Guest speakers offer potential role models and share their leadership perspectives. The workshop and two-semester format of the course allows students to benefit from a cohort model of learning and develop their own network of practice. Moreover, GAINS focuses not just on individual leadership development, but also organizational and systems level change. Students of all genders interested in addressing personal and institutional barriers to advancement that are rooted in gender inequalities and their intersections with race and other forms of inequality are welcome to enroll. To get the most out of the network and cohort development aspects of this course, students are encouraged to participate for two semesters.

PA 5623. GAINS: Gender and Intersectional Network Series, Leadership Workshop II. (0.5-1 cr. ; S-N only; Spring Odd Year)
GAINS: Gender and Intersectional Network Series, Leadership Workshop prepares students with the skills to lead effectively and challenge institutional norms and practices that perpetuate disparities based on gender, race and other structural inequalities. Women, racially marginalized individuals, and LGBTI-identified individuals are still disproportionately underrepresented in leadership roles in public, private, and nonprofit institutions in spite of high rates of educational attainment and equal opportunity legislation. Women of color and indigenous women face even greater obstacles to advancement compared to white women. Barriers to diverse leadership today stem less from overt discrimination and more from ?second generation? forms of bias ? often invisible but still powerful cultural beliefs as well as workplace structures and practices. Achieving leadership parity thus entails individual, collective and institutional change. Course pedagogy includes case studies, group discussions, self-reflection and simulations that have been proven to have a lasting impact on individual leaders in developing their own leadership capacity. Guest speakers offer potential role models and share their leadership perspectives. The workshop and two-semester format of the course allows students to benefit from a cohort model of learning and develop their own network of practice. Moreover, GAINS focuses not just on individual leadership development, but also organizational and systems level change. Students of all genders interested in addressing personal and institutional barriers to advancement that are rooted in gender inequalities and their intersections with race and other forms of inequality are welcome to enroll. To get the most out of the network and cohort development aspects of this course, students are encouraged to participate for two semesters.

PA 5683. Gender, Race and Political Representation. (3 cr. ; A-F only; Spring Even Year)
Explores intersection of gender, race and political issues to identify best practices for strengthening roles of under-represented groups in governance. Individual, structural and institutional factors attributed to increasing the election and appointment of under-represented groups. Theories of citizen representation. Global approach with cross-national evidence and comparative country studies.

PA 5690. Topics in Women, Gender and Public Policy. (; 0.5-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics. prereq: Grad student or instr consent

PA 5701. Science and State. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Relationship between science and contemporary society. Nature of science: its values, processes, and ways of knowing. How science has influenced U.S. political institutions and political/judicial processes. Issues in current debate over U.S. science policy. prereq: Grad or instr consent

PA 5711. Science, Technology & Environmental Policy. (; 3 cr. ; Student Option; Every Fall)
Interplay of science, technology, the environment, and society. Approaches from across the social sciences will cover how science and technology can create new environmental pressures as well as policy challenges in a range of spheres from climate change to systems of intellectual property and international development.

PA 5712. Science to Action: All Paths. (1.5 cr. ; Student Option No Audit; Every Spring)
Understanding best practices for translating science to action for the common good, integrating action across multiple sectors: i.e., coordinating action by communities, government, for-profit, non-profit/NGO and academia. Case studies and theories are discussed to address societal grand challenge topic.

PA 5715. Survey of Current Issues in Science, Technology, and Environmental Policy. (; 1.5 cr. ; A-F only; Every Spring)
Current topics in science, technology, and environmental policy. prereq: Grad or instr consent

PA 5721. Energy Systems and Policy. (; 3 cr. ; Student Option; Every Fall)
Impact of energy production/consumption choices on environmental quality, sustainable development, and other economic/social goals. Emphasizes public policy choices for energy/ environment, linkages between them.

PA 5722. Economics of Natural Resource and Environmental Policy. (; 3 cr. ; Student Option; Every Spring)
Public policy associated with natural resource use and environmental protection. Develops/applies economic concepts/ methodologies/policy mechanisms. Principles of environmental/resource economics. Issues related to renewable/nonrenewable resources and environmental pollution. Focuses on scientific/political aspects of policy. prereq: [Intermediate microeconomics, intermediate policy analysis, grad student] or instr consent

PA 5723. Water Policy. (; 3 cr. ; Student Option; Every Spring)
Sociocultural, legal, economic, and environmental forces affecting supply/use of water by individuals, sectors, and governance institutions. Historical trends; water laws in United States and internationally. Institutional structures for managing water at federal, state, and local levels. Current water-related issues/ policies. prereq: Grad student or instr consent

PA 5724. Climate Change Policy. (3 cr. ; Student Option; Every Fall)
Existing and proposed approaches to mitigate and adapt to climate change through policies that cross scales of governance (from local to global) and impact a wide range of sectors. Exploration of climate change policy from a variety of disciplinary approaches and perspectives, emphasizing economic logic, ethical principles, and institutional feasibility. How policy can be shaped in the face of a variety of competing interests to achieve commonly desired outcomes. Students develop a deep knowledge of climate change in particular countries through a team final project. prereq: Intro microecon (such as Econ 1101 or equiv)

PA 5731. Emerging Sciences and Technologies: Policy, Ethics and Law. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This interdisciplinary course will examine issues at the nexus of public policy, ethics, law, and emerging sciences and technologies (ES&T) including nanotechnology, genetic and biomedical engineering, synthetic biology, and artificial intelligence. Topics we will explore include the role of science and technology as both a tool for and the subject of policy and law; the policy, ethical, economic, and

legal implications of ES&T research and development; environmental and human health risk analysis and regulation (e.g., EPA, FDA, OSHA, and state and local regulatory mechanisms); intellectual property issues; liability issues; and global impacts. Topics will be approached from the perspective of different stakeholders (e.g., federal agencies, industry, academic researchers, the environment, international organizations, and the public) and in the context of different application areas (e.g., drugs, devices, food, agriculture, energy, environmental remediation) using a variety of interdisciplinary approaches. Students with a broad range of interests are encouraged to enroll.

PA 5741. Risk, Resilience and Decision Making. (; 1.5 cr. [max 3 cr.] ; Student Option No Audit; Every Spring)
Interplay between risk analysis, decision making, and policy in the context of new and emerging technologies, environmental and human well-being, risk and resilience. Assessment methods; risk management processes, issues and methods; role/treatment of uncertainty; factors in decision making; risk-based rule making; public values; risk communication and perception. Scientific, technical, social, political, and ethical issues. prereq: Grad student or instr consent

PA 5742. Interdisciplinary Environmental Study: Practice and Design. (1.5 cr. ; Student Option No Audit; Every Fall)
Practice & design of interdisciplinary study to support environmental policy-making. Research design (models, experiments, quasi-experiments, case studies & meta-analysis) from a range of disciplines. Their integration in an overarching framework to address pressing STEP issues (e.g., climate change, food security, energy, future cities).

PA 5743. Social Innovation Design Lab: Making Your Idea a Reality. (; 1.5 cr. ; A-F only; Every Spring)
Do you have an idea for an organization, initiative or venture that that could address a social or environmental problem? This course is designed to help aspiring social entrepreneurs and changemakers from all disciplines develop a viable proposal for social change. Course content includes an introduction to human-centered design thinking, change management, leadership skills, non-profit and for-profit business models, and social entrepreneurship frameworks. At the end of the course, students present their project to a panel of experts. Students will be prepared to compete in the Acara Challenge for funding if interested. Students or teams interested in this course should apply by emailing a 1-page resume and project description (1 paragraph to 1 page) of your project/idea to acara@umn.edu. The essay should address your motivation for taking the course, along with describing your idea, where you are with developing it, and what you need to take it forward.

PA 5751. Urban Infrastructure Systems for Sustainable and Healthy Cities. (3 cr. ; A-F or Audit; Every Summer)
Study social actors, engineered infrastructures/ natural systems as they, together, shape health/sustainability outcomes for cities. Understand role of infrastructure design, planning, policy in sustainable cities. Learn sustainability systems concepts, local-to-global linkages, inter-disciplinary, inter-cultural skills. prereq: Grad student or instr consent

PA 5752. Material-Energy Flows & Sustainable Development. (3 cr. ; A-F only; Every Fall)
How do material and energy flows shape the development of a sustainable society? Part I introduces concepts of human wellbeing, sustainable development, the role of natural resources and key physical infrastructure in advancing Sustainable Development Goals (SDGs). Part II describes ways to measure progress toward SDGs, particularly those related to material and energy flows. Part III highlights pathways to work toward SDGs, emphasizing principles and concepts from environmental economics.

PA 5761. Environmental Systems Analysis at the Food-Energy-Water Nexus. (3 cr. ; Student Option; Every Fall)
Agricultural lands, water resources, and energy production and transport are interconnected systems with implications for policy and management at local to global scales. This course will explore contemporary issues at the nexus of food, energy, and water with a focus on Midwestern landscapes. Specific topics include farm policy, permitting of pipelines and energy production, mitigation of air and water pollution, and strategies to incentivize the conservation and restoration of landscapes. Students will develop professional skills in systems thinking, scenario analysis, science communication, facilitation, and collective leadership.

PA 5790. Topics in Science, Technology, and Environmental Policy. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics.

PA 5801. Global Public Policy. (3 cr. ; Student Option; Every Spring)
Creation of rules, norms, institutions to regulate global activities. Policy making. How global policy making regulates interstate, national, transnational activities. Creation/enforcement of global rules. Applications to international security, political economy. prereq: Grad or instr consent

PA 5802. Global Economic Policy. (; 3 cr. ; Student Option; Every Fall)
Economic logic of globalization, national policy objectives, international finance/financial institutions, international trade and agreements including regional pacts and the WTO, global environmental and resource governance, immigration and emigration, and development challenges. prereq: Major in [public affairs or public policy] or instr consent

PA 5805. Global Economics. (3 cr. ; A-F only; Every Fall)
Global trade, exchange rates, finance, international business, and migration in context of theories and evidence that inform the policies pursued at national level. Operation of main international organizations dealing with these issues will also be examined. prereq: [5021 or equivalent] or instr consent

PA 5813. US Foreign Policy: Issues and Institutions. (3 cr. ; Student Option No Audit; Every Fall)
Taught by the Humphrey School diplomat in residence, this course helps students develop a deep understanding of how US foreign policy institutions function, how that is being challenged, and the broader global implications of those changes. Through readings, class discussions, and guest lectures, we look at the institutions and processes involved in developing and managing US foreign policy, and use case studies to advance students? knowledge, including of how the Department of State works, and the expanding role of the Department of Defense, the National Security Council, and intelligence agencies. We examine how economic instruments like sanctions are used to advance policy; and how American citizens, lobbyists, and foreign governments influence policy. We incorporate discussions of current events into each class. Students develop writing and presentation skills critical to foreign policy careers.

PA 5814. Global Diplomacy in a Time of Change. (3 cr. ; Student Option No Audit; Every Spring)
Taught by the Humphrey School?s diplomat in residence, this course examines the changing world of twenty-first century global diplomacy and how state and nonstate actors are challenging the status quo. We look at the dynamics behind major international developments?with case studies including BREXIT, the Iran Agreement, climate negotiations, and China?s global initiatives? placed in the context of an examination of how states operate in the international diplomatic sphere and how multilateral organizations enhance or challenge the concept of state sovereignty. Students gain knowledge about the complexities of diplomacy and negotiation through readings, classroom discussions, and guest speakers and develop professional skills through writing and presentation assignments.

PA 5821. Humanitarianism. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Foundations, logic, dynamics, dilemmas, and consequences of humanitarianism, a form of governance that operates in the name of--and for--the international community. prereq: Grad student or instr consent

PA 5822. International Security. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Theoretical constructs, current debates. Why states fight wars. Causes/consequences of war in Iraq. Effect of nuclear weapons on world safety. Terrorism, civil wars. Nonconventional security threats. Selective abortion and world (un)stability. Causes/effects of wartime sexual violence. Environmental concerns and conflict. prereq: Grad student or instr consent

PA 5823. Managing Humanitarian and Refugee Crises: Challenges for Policymakers & Practitioners. (1 cr. [max 3

cr.] ; Student Option No Audit; Periodic Fall & Spring)
Examines response of governments, international organizations, NGOs, and others to global humanitarian and human rights challenges posed by civil conflict and other complex emergencies in places such as Syria, the Middle East region, South Sudan, Somalia, Burma, and elsewhere. Course will also consider and assess UN and other institutions established to address these issues (like UNOCHA and UNHCR). In addition, course will examine US policy toward humanitarian issues and refugees (including US refugee admissions).

PA 5824. International Humanitarian Crisis Simulation. (1 cr. ; S-N or Audit; Every Fall)
Students learn/practice humanitarian crisis response skills reflecting international standards through a multi-day, humanitarian dynamic crisis simulation. Includes training in international crisis response standards (SPHERE) and population assessment, WASH (water, sanitation and hygiene) for refugee camps, nutrition, interactive shelter design/ planning, the international legal basis for humanitarian response, safety and security issues, psychosocial trauma awareness, and field hospital scenarios. Composed of class meetings and an on-site sector skill training and field crisis simulation.

PA 5825. Crisis Management in Foreign Affairs. (1.5 cr. [max 3 cr.] ; Student Option; Every Spring)
Crisis decision making in foreign policy. Examination of the organization and structure of crisis decision-making within U.S. national security apparatus. Analysis of in-depth four foreign policy crises (Cuban Missile Crisis, Vietnam ? Tet, Iraq, and a current crisis). Crisis simulation with students in the role of national security leaders.

PA 5826. National Security Policy. (3 cr. ; Student Option; Every Fall)
This course will analyze U.S. national security policy and process from the viewpoint of the National Security Council staff. Students will examine the organization and structure of the U.S. national security apparatus and the national security decision-making process, including individual and political factors; assess central threats to U.S. and international security and develop and discuss policy options to deal with those threats; undertake a major policy review on a specific national security challenge facing the United States, including analysis and recommendations; produce products, both written and oral, crucial to national security policy making (e.g., concise information and action memorandum), and put themselves in the position of national security leaders as part of a policy simulation. Grades will be based on oral participation, papers, and class reports.

PA 5841. Women, Violence, and Armed Conflict. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Role of women in recent armed conflicts/ how women are affected by wartime as combatants, civilians, victims, and perpetrators of war violence. Conflicts in Sierra Leone, Liberia and El Salvador, where women participated in fighting forces in large numbers, as well as women's roles in the Abu Ghraib scandal, female suicide bombers, wartime sexual violence. Policy solutions offered by policymakers and NGOs to deal with problems of gender-based violence. prereq: Grad student or instr consent

PA 5851. Middle East Politics. (3 cr. ; A-F only; Periodic Spring)
Middle East Politics examines the domestic, regional, and transnational politics of the Middle East and North Africa. It explores key policy-relevant issues in MENA such as external intervention/occupation, human rights, social movements, political economy, religion and politics, democratization and elections, civil society, and gender. prereq: Grad or instr consent

PA 5880. Exploring Global Cities. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Spring)
Study abroad offered in cities across globe. Opportunities to study policy/planning issues in varied contexts from comparative/inter-cultural perspective. Study/work with practitioners/ peers in field. Tanzania odd years/Austria even years. Additional countries may be added in future.

PA 5885. Human Rights Policy: Issues and Actors. (3 cr. ; Student Option; Every Fall)
Politics of human rights issue emergence; relevant international, regional, and domestic norms; correlates of state repression; measurement of human rights abuse and remedies; human rights promotion by states, political parties, international organizations, NGOs, social movements, faith-based organizations, and providers of international development assistance.

PA 5886. Master of Human Rights Cohort Seminar I. (1 cr. ; S-N only; Every Fall)
The Master of Human Rights Cohort Seminar is a required course for all first-year MHR students. The course is intended to create a cohort group and ensure that all MHR students have an opportunity to work together to explore current issues related to human rights practice, focusing on emerging events or crises, and debates over policy, practice, or theory and for direct contact with and networking particularly with counterparts in the Global South. This course is in a series with, and taken before, PA 5887. prereq: First-year MHR

PA 5887. Master of Human Rights Cohort Seminar II. (1 cr. ; S-N only; Every Spring)
The Master of Human Rights Cohort Seminar is a required course for all first-year MHR students. The course is intended to create a cohort group and ensure that all MHR students have an opportunity to work together to explore current issues related to human rights practice, focusing on emerging events or crises, and debates over policy, practice, or theory and for direct contact with and networking particularly with counterparts in the Global South. This course is in a series with, and taken after, PA 5886.

PA 5890. Topics in Foreign Policy and International Affairs. (; 1-5 cr. [max 15 cr.] ; Student Option; Periodic Fall & Spring)
Selected topics.

PA 5910. Developing Your Public Service Career. (; 1 cr. ; S-N or Audit; Every Fall)
Students investigate/analyze interests, skills, and abilities and combine them in a career plan. Develop tools to demonstrate abilities, document experiences/knowledge, and explore public service career options.

PA 5920. Skills Workshop. (; 0.5-4 cr. [max 48 cr.] ; Student Option; Every Fall & Spring)
Topics on public policy or planning skills. Topics specified in Class Schedule.

PA 5924. Intercultural Competence. (; 3 cr. ; A-F only; Every Spring)
Interacting with/working effectively with diverse populations. Researching ancestry. Analyzing cross-cultural communication issues in organizations. Prejudice, discrimination, group belonging. Analyze intercultural competence of global leader. prereq: Grad student or instr consent

PA 5925. Creating a Professional Online Portfolio. (1 cr. ; S-N only; Every Spring)
Build electronic portfolio reflecting knowledge/ skills learned in coursework, internships, volunteer efforts, leadership roles, research activities. Promote professional selves using social networking platform. prereq: [MDP, MPA, MPP, MS-STEP, MURP] or instr consent

PA 5926. Presentation Skills: How to Inspire Your Audience and Change the World. (1 cr. [max 2 cr.] ; Student Option No Audit; Every Fall)
Learn techniques for making effective, persuasive presentations to different kinds of audiences. Practice is essential to improve speaking skills and reduce anxiety. Students practice by recording brief weekly presentations and making class presentations in a supportive environment. Techniques for using Powerpoint to create effective slides are practiced. Course components include presentation assignments; peer reviews; readings/videos and reflections; and class participation. May be repeated once.

PA 5927. Effective Grantwriting for Nonprofit Organizations. (1.5 cr. ; A-F only; Every Fall & Spring)
Grantwriting skills, processes, problem,s and resources for nonprofit organizations. Researching and seeking grants. Communication with potential funders and generating financial support. Collaborating effectively with the organization and clients to create substantive, fundable proposals.

PA 5928. Data Management and Visualization with R. (1 cr. ; Student Option; Every Fall)
Introduction to R Studio software. Use of R Studio to carry out R file and related database management functions. Tools and techniques for data analysis and statistical programming in quantitative research or related applied areas. Topics include data selection, data manipulation, and data and spatial visualization (including charts, plots, histograms, maps, and other graphs). Prerequisite knowledge: Introductory statistics; ability to create bar graphs, line graphs, and scatter plots in MS

Excel; and familiarity with principles of data visualization.

PA 5929. Data Visualization: Telling Stories with Numbers. (2 cr. ; Student Option; Every Fall & Spring)
Tools for communicating quantitative information in an intelligent, effective and persuasive way. Topics covered include 1) writing and speaking about data; 2) data management in Excel in order to prepare data for charting; 3) understanding and ability to deploy core concepts in of design, layout, typography and color to maximize the impact of their data visualizations 4) determining which types of statistical measures are most effective for each type of data and message; 5) determining which types of design to use for communicating quantitative information; and 6) designing graphs and tables that are intelligent and compelling for communicating quantitative information.

PA 5932. Working with Data: Finding, Managing, and Using Data. (1.5 cr. ; Student Option; Every Spring)
Hands-on experience with common issues that arise when using secondary data sets. After successful completion of the course, students should be able to: 1. Determine where to find data and information about data (metadata) for policy-related topics. 2. Repurpose, manipulate, and/or clean data collected by someone else or for a different purpose in order to answer questions. 3. Determine appropriate units of analysis, weights, data structure, and variables of interest in order to answer policy-related questions. 4. Document workflow to allow reproducibility and protect the confidentiality of the data. 5. Conduct basic data manipulation tasks (making tables) using existing software including Excel and Stata. 6. Learn how to find answers for questions through online support. This course will focus on Excel and Stata equally. Previous experience in Stata is preferred, but the course will include a brief introduction to relevant skills.

PA 5933. Survey Methods: Designing Effective Questionnaires. (2 cr. ; A-F only; Every Spring)
Applied (hands-on) introduction to survey questionnaire design. Student teams design a questionnaire for a real or imaginary client, typically a non-profit/NGO or governmental agency. For example, students may draft and revise questions about respondents? demographics and employment; life histories; knowledge, use, and opinions about services; and anxiety and well-being. The class will spend two weeks on each module, actively engaging in class about draft questions, and through that practice, learning how to improve them. Survey questions will be entered into SurveyToGo, an app used offline on Windows devices to collect data, and questionnaire will be tested on a small number of volunteers. Students will learn:
- The process of questionnaire design in a team - Basic pitfalls of survey design ? names, definitions, examples. - How to use Excel to track questions, coded responses, and prompts for interviewers - How to use interviewing software SurveyToGo This class is not a substitute for a comprehensive survey research class or a statistical course on sampling and weighting.

PA 5934. HPAR - Humphrey Public Affairs Review Board Seminar. (1.5 cr. [max 3 cr.] ; S-N only; Every Fall)
This course provides a seminar context for the work of members of the editorial board for the Humphrey Public Affairs Review (HPAR). It meets seven times over the course of Fall semester to provide logistical and technical guidance for the Board as it produces the online journal. Students engage in the various activities required to publish the journal. In the beginning of the semester, students conduct outreach to solicit submissions and discuss the selection criteria for submissions. They work closely with the conventions of APA style and citations, while developing their copyediting abilities. Central to journal production is engaging with the peer-review process, through providing feedback to authors and discussing critiques with editing teams. Finally, students submit their own pieces of writing to the journal for publication. As a result, students participate in peer-review as both an editor and an author.

PA 5951. Humphrey Fellows Global Commons Seminar. (; 1 cr. [max 6 cr.] ; S-N only; Every Fall)
This seminar will introduce Humphrey International Fellows to the public policy, law, and human rights landscape of Minnesota and provide opportunities for professional growth and development in accordance with the goals of the Hubert H. Humphrey International Fellows Program. Through a series of lectures, presentations, trainings and site visits, fellows will be exposed to professional development opportunities, skill building, cultural education, leadership training and networking opportunities. Fellows will also have the opportunity to hear from experts in their fields of expertise, and learn best practices and strategies in public policy, law, and human rights advocacy.

PA 5962. State Governing and Legislating: Working the Process. (3 cr. ; A-F only; Every Spring)
The Minnesota Capitol and rules and reality of state governance and legislating. Classroom discussions, high-profile guest speakers (including legislators, lobbyists and potentially the governor), and an extensive State Capitol practicum to explore state politics and policies.

PA 5971. Survey of Election Administration. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)
Survey of building blocks of election administration, from voter registration to recounts.

PA 5972. Elections and the Law. (; 2 cr. [max 3 cr.] ; Student Option No Audit; Every Fall)
Theories and basic structure of the American legal system. Experience with basic tools and skills for using the law to understand and analyze issues facing election administrators across the nation. Use of election-related and non-election related materials to prepare election administrators for interacting with counsel, legislators and the courts in carrying out their responsibilities.

PA 5973. Strategic Management of Election Administration. (; 2 cr. ; Student Option No Audit; Every Fall)
Strategic management for election administrators in the political environment. Election official tools and challenges. The role of the lawmaking process in budgeting and organizational planning.

PA 5975. Election Design. (; 2 cr. ; Student Option No Audit; Every Spring)
Election administration design principles, including ballot and polling place design and poll worker training materials. Application of principles of field.

PA 5976. Voter Participation. (; 1 cr. ; Student Option No Audit; Every Fall & Summer)
Voter participation issues and challenges including historical survey of voter participation in US and methods to increase voter turnout.

PA 5980. Topics in American Election Administration. (; 0.5-3 cr. [max 9 cr.] ; Student Option; Periodic Summer)
Selected topics in American election administration. prereq: Grad student or instr consent

PA 5981. American Institutions in Historical Perspective. (; 1.5 cr. ; Student Option; Periodic Spring)
History of churches, fraternal organizations, charities, and institutions more directly related to government. prereq: Grad student or instr consent; basic US history course recommended

PA 5982. Data Analysis for Election Administration. (; 2 cr. ; Student Option No Audit; Every Spring)
Evidence-based election administration. Collection and analysis of quantitative data to solve problems and identify opportunities for improvement. Emphasis on pre-election forecasting for planning purposes and post-election auditing of election results.

PA 5983. Introduction to Election Security. (; 1 cr. ; Student Option No Audit; Every Fall)
This course will examine the history of cyberattacks on the United States and the American election system, with special attention to the 2016 election cycle. Students will explore the types of cybersecurity threats that exist and strategies to protect against them; understand the roles different levels of government can play in the process, and hear from key officials about the issues raised by the official response to election security threats at the federal, state and local levels as well as in related private sector communities.

PA 5984. Elections Security: How to Protect America?s Elections. (; 2 cr. ; A-F or Audit; Every Spring)
?Elections Security? uses the Russian efforts to influence the 2016 election as a case study to identify the vulnerabilities of US elections (especially state voter registration databases) as well as catalogue new protections. Readings and discussion will focus on best practices and technology options available to the public

(social media) and elections professionals (cybersecurity) in guarding against future influence efforts and assuring public confidence in election outcomes. Special focus will be given to describing how local election officials can protect their election technology, most notably those vulnerabilities associated with their voting system and voter registration database. ?Elections Security? will draw heavily on concrete cases and challenges facing election professionals, using government and independent reports and an indepth analysis of new resources created by the US Department of Homeland Security and its collaborations with election professionals.

PA 5990. Topics: Public Affairs - General Topics. (; 0-3 cr. [max 18 cr.] ; Student Option; Periodic Fall & Spring)
General topics in public policy.

PA 5993. Directed Study in Public Affairs. (1-3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Self-directed study, with faculty advice.

Public Health (PUBH)

PUBH 1001. Success Over Stress (SOS). (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Success Over Stress (SOS) covers the stress process, the physical signs and symptoms of stress, and long-term outcomes of chronic stress. Students will learn various strategies to cope with stress associated with time management, academic pressures, interpersonal relationships, financial strain, grief, and college transitions. Assignments ask students to reflect about their current stressors as well as the effectiveness of the coping strategies they most frequently use. SOS leverages trained peer educators as TAs who provide personalized feedback on each reflection to encourage experimentation with new, adaptive coping strategies. SOS is offered as a 15-week full term version and 7-week B-term version. prereq: Undergrad or PSEO student

PUBH 1002. Personal Technology and Wellbeing. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Our devices are important tools. They provide connection, allow us to complete academic and career-based work and engage in hobbies, and provide a way to find answers and generate ideas, to name a few. Use of technology can also negatively impact overall wellbeing psychologically, physically, socially, and academically. This course addresses the ways in which technology can detract from and contribute to a person?s overall wellbeing and strategies for engaging with technology in ways that are safe, private, productive, and helpful. Public health and psychology frameworks will help students explore society?s ties to technology and empower students to examine their own relationship with technology and the ways in which it influences wellbeing. Prerequisite: Undergraduate or PSEO student.

PUBH 1003. Alcohol and College Life (ACL). (; 1 cr. ; Student Option; Every Fall & Spring)
Alcohol and College Life was developed to address some of the issues many students face in college and reinforce personal prevention strategies to maximize student and campus safety. The course provides college students with factual information about how alcohol and other substances affect college life and counters dangerous myths regarding substance use. We want to present students with unbiased information to help them make responsible decisions. Course content highlights stories and information pertinent to all students, regardless of whether or not they choose to drink or use substances. In addition, the course incorporates strategies to enhance academics, time management, self-care, financial wellness, and interpersonal communication. Students are encouraged to think about how the modules apply to their own experiences. prereq: Undergrad or PSEO student.

PUBH 1004. Sexuality Matters. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Knowledge/skills to lead healthy sexual lives. Unbiased, medically accurate, evidence-based information/programs. Communication skills. Dispel sexuality/relationships myths. prereq: Undergrad or PSEO student

PUBH 1005. Sleep, Eat, and Exercise. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Sleep, Eat, and Exercises covers basic concepts in nutrition, sleep, and physical activity and incorporates a variety of techniques to promote self-awareness and reflection, goal setting, and action toward wellness. Inactivity, poor nutrition, and inadequate sleep are common problems among college students and are leading contributors to a variety of short- and long-term consequences. Research indicates that, in addition to improving physical health, healthy habits can reduce stress and improve academic performance. Sleep, Eat, and Exercise is an introductory level course designed to provide you with the knowledge and skills you need to live a balanced life while in college. prereq: [Undergrad or PSEO] student

PUBH 3001. Personal and Community Health. (2 cr. ; Student Option; Every Fall & Spring)
Fundamental principles of health conservation and disease prevention.

PUBH 3003. Fundamentals of Alcohol and Drug Abuse. (2 cr. ; Student Option; Every Fall & Spring)
Scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems. Emphasizes incidence, high-risk populations, prevention, and intervention.

PUBH 3004. Basic Concepts in Personal and Community Health. (; 4 cr. ; Student Option; Every Fall & Spring)
Scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, and alcohol and drug problems. Role of education in health conservation, disease control, and drug abuse.

PUBH 3011. Public Health Approaches to HIV/AIDS. (; 2 cr. ; Student Option; Every Fall)
Primary, secondary, and tertiary prevention. Community responses to HIV/AIDS in Minnesota. Medical, social service, and political responses.

PUBH 3051. Practicum in Peer Education I. (; 2 cr. ; A-F or Audit; Every Fall)
Multiple factors that influence health. Through various health promotion strategies, students build upon or gain skills such as public speaking, needs assessments, program planning, interpersonal communication, and program evaluation. prereq: Selected to serve as a hlth advocate, instr consent

PUBH 3052. Practicum in Peer Education II. (; 2 cr. ; A-F or Audit; Every Spring)
Multiple factors that influence health. Through health promotion strategies, students gain/build skills such as public speaking, needs assessments, program planning, interpersonal communication, and program evaluation. prereq: Undergrad student, demonstrated hlth sci or hlth ed interest, selected to serve as a hlth advocate, instr consent

PUBH 3093. Directed Study: Public Health. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Directed study in selected public health problems or current issues. prereq: instr consent

PUBH 3100. Topics: Environmental Health. (; 1-3 cr. [max 40 cr.] ; Student Option No Audit; Every Fall, Spring & Summer)
Topics of interest in environmental health.

PUBH 3102. Issues in Environmental and Occupational Health. (; 3 cr. ; Student Option; Every Fall & Spring)
This course is an introduction to the field of Environmental and Occupational Health (EOH), the impact of environmental and occupational hazards on individuals and communities, the approaches taken to address EOH issues at the community level,and the challenges that must be overcome to ensure success in dealing with EOH issues. Students will review scientific literature to learn about interventions for environmental health problems, and practice identifying environmental health problems and interventions in their communities. The focus of this course will be on the interaction between humans and the environment and how this interaction affects human health. Online Course.

PUBH 3104. Environmental Health Effects: Introduction to Toxicology. (2 cr. ; Student Option; Every Spring)
This course is designed for students who are interested in public health and environmental issues. Toxicology is a multidisciplinary experimental science that combines chemistry, biology, and physiology to determine whether substances we are exposed to in the environment are likely to harm our health. Students will learn how toxicology is used to understand how humans respond to chemicals in the environment. In addition, students will learn how toxicology is applied to protect human health through safety evaluation.

prereq: Previous coursework in biology and chemistry; biochemistry is recommended. Ability to analyze data, and understand the basic functions of DNA, enzymes and other proteins, and lipids.

PUBH 3106. Making Sense of Health Studies. (2 cr. ; Student Option; Every Fall & Spring)
How to critically evaluate health news (and the health research reports on which they are based) to make good, well informed decisions about your health and well-being.

PUBH 3107. Global Public Health and the Environment. (2 cr. ; A-F only; Every Fall)
Environmental determinants of health and or well-being of populations. Role of environment in public health. Population burden of disease. Variation of environmental public health determinants across globe. Interconnectedness of activities and actions of people in different countries. prereq: public health minor, instr consent

PUBH 3120. Injury Prevention in the Workplace, Community, and Home. (2 cr. ; Student Option; Every Spring)
Injury Epidemiology: Analyses of major injury problems, affecting the public in the workplace, community, and home, using the epidemiologic model and conceptual framework; emphasis on strategies/program development for prevention and control. For students involved in the field of Occupational Health and Safety, this course provides a foundation essential to the development of programs for Occupational Injury Prevention and Control. prereq: Basic epidemiology course preferred but not required

PUBH 3123. Violence Prevention and Control: Theory, Research and Application. (2 cr. ; Student Option No Audit; Every Spring)
The course will cover a range of topics including: definitions and characteristics of various forms of violence, prevalence and risk factors, health effects, and prevention initiatives. Sources and limitations of existing epidemiologic data, analytic challenges, research quality and ethics will be examined throughout the course. prereq: None

PUBH 3193. Environmental Health: Directed Studies. (1-3 cr. ; S-N only; Every Fall, Spring & Summer)
Directed study, directed readings, and directed research offers opportunities for students to work individually with a faculty member and to earn credit for individually designed content. The instructor and the student must have a written contract in place that specifies the student's responsibilities for the courses and the name of the instructor who is responsible for turning in the student's grade for the course, as part of the enrollment in the course. Instructors must provide a copy of the contract to the academic department in which the registration for the course occurs. Expected student academic work per credit: at least 3 hours of work per week per credit for undergraduate students; Only one Directed Study, Directed Readings, or Directed Research is allowed per semester.

PUBH 3202. What is Public Health?. (; 2 cr. ; Student Option No Audit; Every Fall)
Overview of public health: what it is, its origins, evolution, how it is structured/administered in the U.S. Mission, concepts, principles, and practices of population-based public health. Case studies. Career opportunities.

PUBH 3210. Topics: Public Health Practice. (; 1-3 cr. ; Student Option No Audit; Periodic Fall, Spring & Summer)
New courses or topics of interest in Public Health

PUBH 3212. Infectious Disease Outbreaks: Review of Public Health Investigation, Response, & Prevention Strategy. (2 cr. ; A-F only; Every Spring)
We share the planet with a myriad of living things. The smallest of those are the ones that may impact our lives the most. These creatures are in the news nearly every day: Ebola virus in Africa, measles outbreaks in large cities, norovirus outbreaks on cruise ships, Zika virus precautions for pregnant women. This course will focus on the principles of outbreak investigation and response at the local, state, and national public health level through lectures and interactive experiences led by former public health leaders from the Minnesota Department of Health, editors and reporters from Center for Infectious Disease Research and Policy (CIDRAP) News, and current leaders of the University of Minnesota public health response system. Students will explore the many facets of infectious disease outbreak investigation, response, and prevention operations and decision-making which are often behind the scenes and not well understood by the general public. prereq: BIOL 1009 or BIOL 1009H or equivalent Honor students who have completed HSEM 2707H are NOT eligible to register for this course.

PUBH 3351. Epidemiology: People, Places, and Disease. (; 2 cr. ; Student Option; Every Fall & Spring)
How diseases are distributed among us. Epidemiology terminology, methods, critical thinking, and analysis. Intended for students interested in a health science career or in a career that may need to evaluate epidemiologic evidence such as health journalism or public policy or litigation. prereq: Undergrad statistics course is recommended

PUBH 3365. Microbes, Maps and Models: Introduction to Infectious Disease Epidemiologic Methods. (2 cr. ; Student Option; Every Fall)
Infectious disease epidemiology is a topic within the field of epidemiology that covers: 1) Principles and concepts of infectious disease transmission dynamics necessary to understand how and why diseases spread, and 2) Epidemiologic methods, including study designs, needed to quantify key aspects of an infectious disease This course will also discuss: 1) How to use modeling to gain insight into the spread and control of infectious disease, and 2) The role that geography and GIS plays in gaining insights into the emergence and spread of an infectious disease. In this undergraduate course, students will learn key epidemiologic concepts that determine who is at risk for acquiring an infectious disease, how infectious diseases spread and what measures can be taken to prevent or control the spread of an infectious disease. We will also learn how simulation models can provide insights into the spread and control of an infectious disease as well as learn about the use of geographic information systems software for identifying in whom and where a disease occurs. This course will focus on principles, concepts, and methods in epidemiology with an application to infectious diseases. In addition, students will learn how to read and critically review peer-reviewed publications on infectious disease epidemiology, and understand how models and geographic information systems software are used to identify populations. This course will include examples that are from the local, national and international literature.

PUBH 3415. Introduction to Clinical Trials - Online. (; 3 cr. ; A-F only; Every Fall & Summer)
Phases of trials, hypotheses/endpoints, choice of intervention/control, ethical considerations, blinding/randomization, data collection/ monitoring, sample size, analysis strategies. Protocol development/implementation, interactive discussion boards. prereq: PUBH 3415 enrollees must have one semester of undergraduate level introductory biostatistics or statistics (STAT 3011, EPSY 3264, SOC 3811, BIOL 3272, or instr consent) AND junior or senior standing or instr consent.

PUBH 3601. Maternal and Child Health Global Public Health Issues. (; 2 cr. ; A-F only; Every Spring)
Introduction to global health. Health of mothers, infants, children, adolescents. History of MCH, global burden of disease/premature death. Effect of globalization. Programmatic/ policy efforts to address health needs of MCH populations. prereq: Public Health minor requirements or instr consent, [3202 or 3001 or 3004], [3350 or 3106]

PUBH 3801. Health Economics and Policy. (; 3 cr. ; Student Option; Every Spring)
Economics of health care markets. Problems faced by consumers/health care services. Builds on principles of supply/demand for health, health care/insurance, and role of government. Theoretical/empirical models/applications. prereq: Course on microeconomics, course on basic statistics

PUBH 3893. Directed Study: Health Services Research and Policy. (1-4 cr. [max 16 cr.] ; Student Option; Periodic Fall, Spring & Summer)
tbd prereq: instr consent

PUBH 3954. Personal, Social, and Environmental Influences on the Weight-Related Health of Pediatric Populations. (; 2 cr. ; Student Option; Every Fall)
Public health strategies for prevention of pediatric obesity. Includes overview of epidemiology of child/adolescent obesity focusing on social-ecological risk factors. Discussion of implications of risk factors for developing environmentally-focused interventions/programs. prereq: Students should have completed one basic, introductory

nutrition course or equivalent or permission by instructor

PUBH 3955. Using Policy to Address the Weight-Related Health of Child and Adolescent Populations. (; 1 cr. ; Student Option; Every Spring)
Overview of federal, state, local policy approaches. National initiatives for prevention of child/adolescent obesity. Specific policies will be discussed at local, state, federal levels. Extensive discussion on evidence of impact of policies on child/adolescent weight.

PUBH 4010. Summer Institute in Biostatistics. (4 cr. ; A-F only; Every Summer)
Introduction to biostatistics for undergraduate students. Meets every weekday, all day, for six weeks summer between junior or senior year. Fundamentals of biostatistics/epidemiology, statistical computing in R/SAS, clinical trials/ statistical genetics. prereq: Student participant in the Division of Biostatistics SIBS (Summer Institute for Training in Biostatistics) research program.

PUBH 5099. Topics: Epidemiology and Community Health. (; 1-4 cr. [max 8 cr.] ; Student Option; Periodic Fall, Spring & Summer)
New courses or topics of interest in epidemiology, community health promotion, public health nutrition or maternal and child health. prereq: specified by course section.

PUBH 5231. Emergency Preparedness: A Public Health Perspective. (; 2 cr. ; A-F only; Every Spring)
Public health emergency preparedness, response, recovery. Introduction to field's core competencies. Various components of course, including online modules, intended to stimulate interactions among learners. Purpose, history, organization, functions, tools, activities used in field. prereq: Upper-level undergraduate students and grad/professional students in academic health sciences and fields related to public health emergency preparedness, response, and recovery. Credit will be not granted if student has completed the PubH 5230 topic course with same title.

Recreation Administration (REC)

REC 1501. Orientation to Leisure and Recreation. (3 cr. ; A-F only; Every Fall & Spring)
Opportunities to explore field of recreation/ role it plays in society/human development. Visit recreation facilities representing public, quasi-public, for-profit agencies. Overview of recreation field/foundation for continuing on to more advanced recreation courses.

REC 1600. Topics in Recreation Administration. (; 1-4 cr. [max 9 cr.] ; Student Option No Audit; Periodic Fall & Spring)
Topics related to the understanding of the Recreation Industry which may include historical perspectives and philosophical foundations as well as contemporary issues and challenges.

REC 2151. Outdoor and Camp Leadership. (3 cr. ; A-F only; Every Spring)
Practical/theoretical study of leading/educating diverse groups in outdoor settings. Outdoor leadership skills, styles/methods, how these translate to general leadership methods in other settings/careers. How leadership styles impacts learning processes.

REC 3281. Research and Evaluation in Recreation Administration. (; 4 cr. ; A-F only; Every Fall)
Social research/evaluation methodology. Survey of present status of recreation/park research, evaluation. prereq: Rec major or instr consent

REC 3541W. Recreation Programming. (WI; 3 cr. ; A-F only; Every Fall)
Methods, skills, materials needed for planning, developing, implementing, evaluating professional recreation programs for diverse populations in various settings. prereq: REC major or instr consent

REC 3551. Recreation Administration and Finance. (; 4 cr. ; A-F only; Every Spring)
Principles/practices of financing/managing leisure service agencies in public/private sector. prereq: rec major

REC 3601W. Leisure and Human Development. (WI; 3 cr. ; A-F only; Every Spring)
Explore issues associated with roles of leisure throughout life span. Principles/procedures for designing programs, services, facilities relative to individual values, attitudes, identity, culture, age, gender. prereq: REC major or instr consent

REC 3796. Senior Internship in Recreation Administration. (3-9 cr. ; S-N only; Every Fall, Spring & Summer)
On-the-job supervised practical experience under specialist in a field directly related to student's academic program. prereq: Rec major, completion of most core courses, sr, instr consent

REC 3993. Directed Study in Recreation Administration. (; 1-9 cr. ; A-F only; Every Fall, Spring & Summer)
Work with faculty or grad students on research or scholarly or creative activities. Students usually assist with faculty scholarship or carry out projects under faculty supervision. Topic leads to new learning or discovery or contributes to student?s academic program. prereq: Rec major, instr consent

REC 4161. Recreation Land Policy. (3 cr. ; A-F only; Every Spring)
Historical development of recreational land policy in United States. Related contemporary issues in policy, management, interpretation, research.

REC 4191. Adventure Recreation, Tourism, and Eco-Tourism. (3 cr. ; A-F only; Every Spring)
Development of adventure recreation programs, including emphasis on tourism industry.

REC 4271. Community Leisure Services for Persons with Disabilities. (; 3 cr. ; A-F only; Every Fall)
Exploration/application of concepts/techniques of normalization. Least restrictive environment strategies to leisure service delivery in inclusive community settings for range of individuals with disabilities. prereq: REC major or instr consent

REC 4301. Wilderness and Adventure Education. (4 cr. [max 12 cr.] ; A-F only; Every Spring)
Rationale for, methods in applying wilderness/ adventure education programs in education, recreation, corporate, human service settings. Emphasizes adventure/wilderness program management.

REC 4311. Programming Outdoor & Env Ed. (3 cr. ; A-F only; Every Spring)
Methods, materials, settings for developing/ conducting environmental/outdoor education programs. prereq: REC major or ORE minor or instr consent

Rehabilitation Science (RSC)

RSC 5058. Anatomy for Rehabilitation Science. (1-6 cr. ; A-F or Audit; Every Summer)
Study of gross human anatomy through modular lecture/laboratory experiences that include cadaver dissection of extremities, head, neck, back, abdomen, thoracic, pelvic regions with correlation to clinical conditions. prereq: Student enrolled in Rehabilitation Science Program, instr consent, dept consent

RSC 5060. Lower Extremity Anatomy Intensive. (2 cr. ; A-F only; Every Summer)
Intensive and focused study of lower extremity gross human anatomy for graduate students. The content is presented through lecture and laboratory experiences that include cadaver dissection of human lower extremities with correlation to clinical conditions.

RSC 5065. Upper Extremity Anatomy Intensive. (2 cr. ; A-F only; Every Summer)
Intensive and focused study of upper extremity gross human anatomy for graduate students. The content is presented through lecture and laboratory experiences that include cadaver dissection of human upper extremities with correlation to clinical conditions.

RSC 5101. Mathematical Tools for Research Applications in Health, Rehab, and Human Movement Sciences. (; 1 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Quantitative research approaches in health, rehabilitation, human movement sciences. Application examples/practice problems focus of the course. Basic algebra/geometry, solving equations for unknowns, logarithmic transforms, derivatives/ integrals, matrix methods, use of macros in research applications. prereq: Basic algebra, trigonometry, and geometry. Pre-calculus or calculus is helpful but not required.

RSC 5106. Introduction to Rehabilitation Science. (1 cr. ; Student Option; Periodic Fall)
This is one of a series of seminar courses that prepares students to think critically in reading and discussing the literature in rehabilitation science and to speak and write persuasively on scientific topics. This semester, the seminar will focus on the past, present, and future of rehabilitation science. This course will

include lecture presentations from rehabilitation science faculty for the first 50 minutes of the weekly class time, as well as discussion/ interaction sessions planned jointly by assigned students and faculty for the second 50 minute session each week.

RSC 5135. Advanced Biomechanics I: Kinematics. (3 cr. ; A-F or Audit; Fall Odd Year)
How to describe/measure movement. Basic/ applied biomechanics, pathokinesiology, and rehabilitation literature. Lecture, lab, seminar discussion. Meets with RSC 8135. prereq: instr consent

RSC 5200. Introduction to Neuromodulation. (1-3 cr. ; A-F or Audit; Fall Even Year)
This course will provide training in the theory, biophysics and evidence-based application of non-invasive magnetic and electric brain stimulation in humans. Course content will be delivered in three modules: (1) safety and administration of non-invasive brain stimulation, (2) neuromodulation methods, and (3) advanced assessment and modeling techniques. All registered students must take module #1. Testing methods will include various methods to assess intracortical, transcallosal and interhemispheric excitability. Neuromodulation methods presented will include non-invasive and invasive forms of brain stimulation. Hands-on instruction and laboratory applications will be provided for cortical excitability testing using transcranial magnetic stimulation (TMS) as well as for other non-invasive forms of brain stimulation. Those enrolled will both administer and receive non-invasive brain stimulation and will be asked to sign a consent form. Specific safety exclusion criteria for receiving non-invasive brain stimulation exist and enrollees who have questions should contact the Division of Rehabilitation Science.

RSC 5206. Academic Ethos. (1 cr. ; A-F or Audit; Periodic Spring)
Explicit/implicit culture unique to academia. Early understanding within/beyond rehabilitation science. Role of higher education in society, academic freedom, tenure, corporatization of education, accreditation, globalization of education, regulatory monitoring of research, faculty scholarship/ governance.

RSC 5231. Clinical Biomechanics. (2-5 cr. ; A-F only; Every Fall)
Biomechanics. Internal/external forces/ structures responsible for normal/abnormal human movement. Joint and tissue mechanics, muscle function, task analysis, and gait mechanics. Lecture and lab practice. prereq: concurrent registration is required (or allowed) in PT 6231, general physics, [intro or short] calculus, anatomy; intensive anatomy course in human cadaver dissection recommended

RSC 5235. Advanced Biomechanics II: Kinetics. (3 cr. ; A-F or Audit; Spring Even Year)
Forces that create human motion and are produced within body as a result. Measuring human motion. Clinical movement assessment, Exercise, sport, and activities of daily living. Two-dimensional rigid body dynamics models, forward/inverse dynamics solutions, hypotheses to describe whole body/joint kinetics. Lectures, lab, discussion. prereq: 5135 or equiv or instr consent

RSC 5281. Physiology for Physical Rehabilitation. (2-4 cr. ; A-F or Audit; Every Fall)
This course provides an in-depth presentation of fundamental concepts in tissue and organ system physiology as it relate to general health, aging, and physical exercise. Emphasis is on the following systems: muscle, bone & connective tissue, endocrine, immune, renal, gi, and hematology. Influence of aging on these systems will be addressed as well. prereq: Rehabilitation Science grad student

RSC 5294. Independent Study in Rehabilitation Science. (1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent exploration into topics related to rehabilitation science. prereq: Rehabilitation science student or program approval

RSC 5306. Scientific and Professional Presentation. (1 cr. ; A-F or Audit; Periodic Spring)
This course will focus on the process and practice of oral presentation of scientific inquiry and discoveries. These skills are essential for scientists in all disciplines, yet often guidelines for optimal scientific presentation are not taught or practiced in an educational setting. Specific areas to be covered in this course include presentation intent, audience analysis, timing, content, keys to effective communication, vocal behavior, and important things to avoid. Context will include conference-style platform or podium presentations, poster presentations, and seminar presentation. The course will involve opportunities to prepare and practice presentation skills and receive constructive feedback in a safe, supportive environment. It is appropriate for students from all disciplines and levels of PhD study.

RSC 5310. Physiology for Physical Rehabilitation. (1-5 cr. ; A-F or Audit; Every Spring)
This course is designed to convey foundational information regarding human basic physiology and more advanced integrative physiology to provide the student a broad range of knowledge on how the human body works at rest, exercise, and as we age. Basic cell physiology, which serves the human body?s infrastructure for function in different cell types for various organ systems, will be discussed with the major emphasis of this course being on the human body as a system. Along these lines, most of the content will relate to integrative physiology, as our systems are often redundant in regulating homeostasis. The objective of this course is to prepare the student for the study of pathophysiologic changes within the human body.

RSC 5402. The Shoulder in Sports Rehabilitation Science. (; 3 cr. ; A-F or Audit; Every Spring & Summer)
A three-credit online course for students who are interested in investigating the biomechanical and epidemiological aspects of the shoulder in athletics. The course will explore the unique demands placed on the shoulder in sports that involve throwing, swimming, swinging, and bodily impacts. The course begins with an investigation into sport-specific biomechanics, pathomechanics, and epidemiology and progresses to applied problem solving for rehabilitation and research scenarios. prereq: (1) an undergraduate or graduate human anatomy course and (2) an undergraduate or graduate biomechanics course. It is recommended, but not required, you have an anatomy course including a detailed shoulder anatomy section and a biomechanics course including a detailed shoulder biomechanics section. Consent from course instructor or Rehabilitation Science graduate program is required.

RSC 5814. Age, Exercise, and Rehabilitation. (2 cr. ; Student Option; Every Fall)
Overview of normal physiological responses to exercise in the elderly. Comparison of exercise-induced responses of physiological systems throughout aging process. Focuses on importance of exercise from rehabilitation perspective. Offered Fall semesters of even-numbered years. prereq: Rehabilitation science student or program permission

RSC 5841. Applied Data Acquisition and Processing. (3 cr. [max 4 cr.] ; A-F or Audit; Spring Odd Year)
This course will introduce students to collecting and processing biomedical time series data. Students will gain experience using data acquisition hardware common in many laboratories, as well as related software for acquisition of the data and digital signal processing. Data sources will include electromyography (EMG), wearable sensors, motion capture, and data from other systems based on the background and interests of students in the class. The overall goal of this course is to provide students with the necessary, fundamental skills to run a successful experiment, troubleshoot errors, and produce high quality data sets. prereq: prefer students to have completed general physics, introductory of short calculus

RSC 5901. Scholarly Inquiry in Health Sciences. (4 cr. ; A-F or Audit; Every Spring)
How research evidence is developed, disseminated, utilized in health sciences. Qualitative/quantitative scholarly project proposal. Critique studies/peer proposals. Explore conduct of research. prereq: Three credits of undergraduate statistics. instr consent, dept consent.

Religious Studies (RELS)

RELS 1001. Introduction to the Religions of the World. (GP; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to major religions of world/ academic study of religion. Hinduism, Buddhism, Judaism, Christianity, Islam, some pre-Christian religions of Antiquity.

RELS 1002. Contemporary Issues in Religion, Culture, and Society: An

Introduction to Religion. (AH; 3 cr. ; Student Option; Every Fall)
Through examination of several contemporary issues this course introduces students to the complex ways in which religion functions in everyday life. The course will examine the intersection of religion with several cultural and social contexts and issues, such as gender, the environment, politics, power, race, ethnicity, health, medicine, food, art, and entertainment. It will draw upon the practices, texts, communities, and institutions of several religious traditions and familiarize students with interdisciplinary, humanistic methods for studying religion.

RELS 1034. Introduction to Jewish History and Cultures. (HIS; 3 cr. ; Student Option; Every Fall)
This course traces the development of Judaism and Jewish civilizations from their beginnings to the present. With over three millennia as its subject, the course must of necessity be a general survey. Together we will explore the mythic structures, significant documents, historical experiences, narratives, practices, beliefs, and worldviews of the Jewish people. The course begins by examining the roots of Judaism in the Hebrew Bible and the history of ancient Israel but quickly focuses on the creative forces that developed within Judaism as a national narrative confronted the forces of history, especially in the forms of the Persian, Greek, and Roman empires. Rabbinic Judaism becomes the most dominant creative force and will receive our greatest attention, both in its formative years and as it encounters the rise of Christianity and Islam. After studying the Jewish experience in the medieval world, we will turn to Judaism? s encounter with the enlightenment and modernity. The historical survey concludes by attending to the transformations within Judaism and Jewish life of the last 150 years, including a confrontation with the experience of the Holocaust. Woven throughout this historical survey will be repeated engagements with core questions: ?Who is a Jew?? ?What do Jews believe?? ?What do Jews do?? ?What do we mean by ?religion??? ?How do Jews read texts within their tradition?? And perhaps most importantly, ?How many answers are there to a Jewish question?? Students in this course can expect to come away with some knowledge of the Bible in Judaism, rabbinic literature and law, Jewish mysticism and philosophy, Jewish nationalism and Zionism, Jewish culture, ritual, and worship in the synagogue, the home, and the community, and Jewish celebrations of life cycle events and the festivals.

RELS 1082. Jesus in History. (HIS; 3 cr. ; Student Option; Every Spring)
Who was Jesus? While there has been some basic consistency in the depictions of Jesus throughout history, there has also been lots of variety. We will explore a whole host of portraits of Jesus at different points in history to demonstrate not only the varying ways that Jesus has been thought of but also to understand the relationship between these portraits and the historical and cultural contexts in which they were created. We will look at the gospels of the New Testament and some from outside the New Testament. We will look at ancient and medieval art. And we will look at modern film. Although we might not get to the bottom of who Jesus was, we might understand more fully how communities throughout history have thought about him. Intended as a course of interest to undergraduates in all colleges of the TC campus. Students of any, all, or no religious background are welcome.

RELS 1201. Bible:Context & Interpretation. (LITR; 3 cr. ; Student Option; Every Fall)
Introduction to the modern academic study of the Old Testament/Hebrew Bible in the historical context of literature from ancient Mesopotamia. Read Babylonian Epic of Creation, Epic of Gilgamesh, Hammurabi, Genesis, Exodus, Psalms. Stories of creation, law, epic conflict, and conquest. prereq: Knowledge of Hebrew not required

RELS 1544W. Martyrs, Monks, Crusaders: World Christianity, 100-1400. (GP,WI,HIS; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
This course surveys the history of Christianity from its status as a persecuted minority religion of the Roman Empire to its dominant role in medieval Europe and Byzantium. We study Christian traditions in Asia and Africa as well as Europe with special attention to the relationship between Christianity and culture in the ancient and medieval world.

RELS 3001W. Theory and Method in Religion: Critical Approaches to the Study of Religion. (WI; 3 cr. ; Student Option; Every Spring)
Theoretical/methodological issues in academic study of religion. Theories of origin, character, and function of religion as a human phenomenon. Psychological, sociological, anthropological, and phenomenological perspectives.

RELS 3013W. Biblical Law and Jewish Ethics. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course. Old: Significance of religious law in Judaism. Babylonian background of biblical law. Biblical creation of the person as a legal category. Rabbinic transformations of biblical norms. Covenant in Christianity/Islam. Contemporary Jewish literature/philosophy.

RELS 3034. Introduction to Jewish History and Cultures. (HIS; 3 cr. ; Student Option; Every Fall)
This course traces the development of Judaism and Jewish civilizations from their beginnings to the present. With over three millennia as its subject, the course must of necessity be a general survey. Together we will explore the mythic structures, significant documents, historical experiences, narratives, practices, beliefs, and worldviews of the Jewish people. The course begins by examining the roots of Judaism in the Hebrew Bible and the history of ancient Israel but quickly focuses on the creative forces that developed within Judaism as a national narrative confronted the forces of history, especially in the forms of the Persian, Greek, and Roman empires. Rabbinic Judaism becomes the most dominant creative force and will receive our greatest attention, both in its formative years and as it encounters the rise of Christianity and Islam. After studying the Jewish experience in the medieval world, we will turn to Judaism? s encounter with the enlightenment and modernity. The historical survey concludes by attending to the transformations within Judaism and Jewish life of the last 150 years, including a confrontation with the experience of the Holocaust. Woven throughout this historical survey will be repeated engagements with core questions: ?Who is a Jew?? ?What do Jews believe?? ?What do Jews do?? ?What do we mean by ?religion??? ?How do Jews read texts within their tradition?? And perhaps most importantly, ?How many answers are there to a Jewish question?? Students in this course can expect to come away with some knowledge of the Bible in Judaism, rabbinic literature and law, Jewish mysticism and philosophy, Jewish nationalism and Zionism, Jewish culture, ritual, and worship in the synagogue, the home, and the community, and Jewish celebrations of life cycle events and the festivals.

RELS 3070. Topics in Religious Studies. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)

Topics specified in Class Schedule and Course Guide.

RELS 3071. Greek and Hellenistic Religions. (HIS; 3 cr. ; Student Option; Fall Even Year)
Greek religion from the Bronze Age to Hellenistic times. Literature, art, archaeology. Homer/Olympian deities. Ritual performance, prayer, sacrifice. Temple architecture. Death/ afterlife. Mystery cults. Philosophical religion. Near Eastern salvation religions. Meets with 3171.

RELS 3072. The Birth of Christianity. (AH; 3 cr. ; Student Option; Periodic Fall & Spring)
Early Jesus movement in cultural/historical setting. Origins in Judaism. Traditions about Jesus. Apostle Paul, controversies/interpreters. Authority, religious practice, structure. Emergence of canon. Contemporary methods of New Testament study. Biblical writings as history/narrative. CNES 3072/CNES 5072/ RELS 3072/RELS 5072 meet together.

RELS 3076. The Apostle Paul: Life, Letters, and Legacy. (; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
How/what can we know about Paul. What his message was. What he was fighting. How he was later understood by friends/foes.

RELS 3079. Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700. (GP,HIS; 3 cr. ; Student Option; Fall Odd Year)
Diversity of social/cultural interactions between Muslims and Jews and between Islam and Judaism since 1700. What enabled the two religious communities to peacefully coexist? What were causes of conflict? Why is history of Muslim-Jewish relations such a contested issue?

RELS 3092. Jesus in History. (HIS; 3 cr. ; Student Option; Every Spring)
Who was Jesus? How can we recover what he said and did? Why was he killed and who did it? Was there agreement about the life and words of Jesus in the earliest stages of Christianity, or were there major disagreements even then? How were the early writers about Jesus influenced by their social, political, and religious contexts? And why was it reported in the news recently that Jesus was married? In this course we examine the earliest attempts to describe Jesus and his significance in the gospel literature of the first and second centuries and beyond. We ask how historians may claim to "know" the "facts" of Jesus's life and meaning in light of these various portraits. We seek to understand how the different literary presentations of Jesus reflect their authors' social, religious, and political situations. We aim to understand in more detail the diversity of perspectives about Jesus from the earliest stage of the development of Christianity. Intended as a course of interest to all undergraduates on the Twin Cities campus. Students of any, all, or no religious background are welcome.

RELS 3113. History of Modern Israel/ Palestine: Society, Culture, and Politics. (GP; 3 cr. ; Student Option; Fall Odd Year)
History of Zionism/Israel. Arab-Jewish conflict, tensions between religious/secular Jews. Relationships between Mizrahi, Ashkenazi, Russian, Ethiopian, Arab citizens. Israeli cultural imagery. Newsreels, political posters, television shows, films, popular music.

RELS 3115. Midrash: Reading and Retelling the Hebrew Bible. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How did the Jews of the first seven centuries of the common era read and understand the Hebrew Bible? What were the problems they faced -- interpretive, historical, theological -- in trying to apply their holy scriptures? This course explores key issues that led to the development of a new form of Judaism in late antiquity, rabbinic Judaism, and its methods of scriptural interpretation. The course's study will focus on the forms and practices of rabbinic scriptural interpretation (midrash) as it developed in Roman Palestine and Sasanian Babylonia, focusing on key narrative and legal passages in the Five Books of Moses (Torah). A main focus of the course will be on the ways the rabbis adapted the Hebrew Bible to express their own core concerns.

RELS 3121. Gender and Body in Early Christianity. (AH; 3 cr. [max 30 cr.] ; Student Option; Fall Odd Year)
Ancient Christians, like any other social group in the ancient world, represented themselves through images, stories, and discourses using the cultural tools available to them in their own contexts. In this course, we will explore two key texts of early Christianity (1 Corinthians and the Gospel of Mark) with special attention to how representations of the body and gender served to communicate the nature of what it meant to be Christian for these authors. The study of ancient material offers a space to acquire the skills of critical analysis of body and gender dynamics so that we can better understand the roles that the body and gender play in shaping our self-identity, social interaction, and societal structures.

RELS 3182. Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia. (AH,GP; 3 cr. ; Student Option; Every Fall & Spring)
This course will provide students with foundational knowledge in the art, architecture and archaeology of Egypt, East Africa, Asia Minor, Mesopotamia, Iran and Central Asia from the Neolithic through Late Antiquity (ca. 7,000 B.C.E. - 650 C.E.). Students will gain an understanding of the relationship between the visual material and the social, intellectual, political and religious contexts in which it developed and functioned. In this regard, students will also gain an understanding of the evolution of, and exchanges and differences among, the visual cultures of these time periods and regions. It will also expose them to the preconditions for contemporary geopolitics in the region.

RELS 3201. Bible:Context & Interpretation. (LITR; 3 cr. ; Student Option; Every Fall)
Introduction to the modern academic study of the Old Testament/Hebrew Bible in the historical context of literature from ancient Mesopotamia. Read Babylonian Epic of Creation, Epic of Gilgamesh, Hammurabi, Genesis, Exodus, Psalms. Stories of creation, law, epic conflict, and conquest. prereq: Knowledge of Hebrew not required

RELS 3202. Bible: Prophecy in Ancient Israel. (3 cr. ; Student Option; Every Spring)
Survey of Israelite prophets. Emphasizes Amos, Hosea, Isaiah, Jeremiah, Ezekiel, Second Isaiah. Prophetic contributions to Israelite religion. Personality of prophets. Politics, prophetic reaction. Textual analysis, Biblical scholarship. Prophecy viewed cross-culturally. prereq: [RelS 1001] or [CNES 1201 or JWST 1201 or RELS 1201 or CNES 3201 or JWST 3201 or RELS 3201]

RELS 3205. Women, Gender, and the Hebrew Bible. (AH; 3 cr. ; Student Option; Spring Odd Year)
How men, women, gender, sexuality is portrayed in Hebrew Bible. Social/religious roles/status of women in ancient Israel. Read biblical texts from academic point of view.

RELS 3206. Sex, Murder, and Bodily Discharges: Purity and Pollution in the Ancient World. (3 cr. ; Student Option No Audit; Every Spring)
Dirt is dangerous" wrote Mary Douglas more than 50 years ago in her groundbreaking study, Purity and Danger: An Analysis of Concept of Pollution and Taboo. Her work has been influential in ancient Near Eastern and Mediterranean studies when dealing with issues of sacred/profane, purity/pollution, and ritual sacrifice and purification. Douglas' work provides a framework within which to understand ancients' thinking about these concepts that range from the sacredness of space and of bodies to perceived pollutions caused by bodily leakage or liminal stages of life and death. In this course, we will examine Douglas' theory in light of ancient evidence, with special attention to ancient Israelite literature (the Tanakh or Old Testament) and ancient Jewish literature (the Dead Sea Scrolls), but we will also analyze other ancient Near Eastern and Mediterranean examples of purity and pollution (from epigraphical and documentary evidence).

RELS 3254. Archaeology of Ritual and Religion. (3 cr. ; Student Option; Fall Even Year)
The course discusses evidence for the origins of religion and its diverse roles in human societies over millennia. It focuses on how artifacts and architecture are essential to religious experience. It asks: What constitutes religion for different cultures? Why is religion at the heart of politics, social life, and cultural imagination?

RELS 3321. American Indian Philosophies. (AH,DSJ; 3 cr. ; Student Option; Every Fall, Spring & Summer)
World views of indigenous people of Americas. Topics include native medicines/healing practices, ceremonies/ritual, governance, ecology, humor, tribal histories, status of contemporary native people.

RELS 3371. Buddhism. (GP; 3 cr. ; Student Option; Summer Even Year)

Historical and contemporary account of the Buddhist religion in Asia/world in terms of its rise, development, various schools, practices, philosophical concepts, and ethics. Current trends in the modern faith and the rise of "socially engaged" Buddhism.

RELS 3373. Religion and Society in Imperial China. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
Varieties of religious experience in imperial China. Religion as lived practices. Textual traditions. Buddhism, Daoism, Confucianism, relations among them. Western missionary enterprise in China.

RELS 3374. Introduction to Japanese Religions. (3 cr. ; Student Option; Periodic Fall)
An introduction to the development of different forms of religious practice in Japan over the past fourteen hundred years. A survey of Japanese religions and their development will be combined with specific examples (past and present) that demonstrate the way that religious belief has manifested itself in various forms of cultural practice.

RELS 3377. A Thousand Years of Buddhism in China: Beliefs, Practices, and Culture. (; 3 cr. ; Student Option; Fall Even Year)
Buddhism in China, 4th-15th centuries. Introduction of Buddhism to China. Relevance of Buddhist teaching to indigenous thought (e.g., Taoism, Confucianism). Major "schools": Tiantai, Huayan, Chan/Zen, etc.. Cultural activities of monks, nuns, and lay believers.

RELS 3415W. Art of India. (AH,WI,GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Indian sculpture, architecture, and painting, from prehistoric Indus Valley civilization to present.

RELS 3502. Ancient Israel: From Conquest to Exile. (; 3 cr. ; Student Option; Periodic Spring)
Israelite history in context of what is known from Egyptian, Canaanite, Mesopotamian sources. Focuses on issues raised by archaeological data related to Israelite conquest of Canaan. prereq: Hebrew not required; 3501 recommended

RELS 3504. Apocalypticism, Cosmic Warfare, and the Maccabees: Jewish Strategies of Resistance in Antiquity. (3 cr. ; Student Option; Periodic Spring)
The rise of Hellenistic kingdoms in the ancient Mediterranean and Near East created a variety of responses from local, subjugated peoples, and some of the most documented cases are those of Jewish populations in Koele-Syria/Palestine. The main objective of this course is to analyze Jewish responses to imperial rule and military conflict during the Hellenistic and early Roman periods (c. 300 B.C.E. - 150 C.E.), but we will also spend time examining the broader picture of how local, ancestral groups fared under foreign rule. Along with discussing pertinent archaeological evidence, we will discuss Jewish literature and documentary material from this period, including, the sectarian documents of the Dead Sea Scrolls, the Book of Judith (a Jewish "novel"), the Books of Daniel and the Maccabees (all of which provide historical information about the Maccabean revolt and rise of the Hasmoneans), and the writings of Josephus (a Jewish writer who witnessed the Roman takeover of Palestine in the first century C.E.). This course will stay within the confines of the ancient evidence and not examine later interpretations when analyzing each historical period; it will begin with Ptolemaic control of the region and conclude with the Bar Kokhba revolt, its aftermath, and the resilience of Jewish populations in northern Palestine. Topics that will be examined in depth are messianism and apocalypticism, the Jerusalem Temple, Jewish ancestral traditions (which include "biblical" literature), and theoretical models used by scholars to analyze power relationships in antiquity.

RELS 3520. History of the Holocaust. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Study of 1933-1945 extermination of six million Jews and others by Nazi Germany on basis of race. European anti-Semitism. Implications of social Darwinism and race theory. Perpetrators, victims, onlookers, resistance. Theological responses of Jews and Christians.

RELS 3535. Death and the Afterlife in the Ancient World. (AH; 3 cr. ; Student Option; Fall Odd Year)
Beliefs, attitudes, and behaviors related to death and afterlife found in cultures of ancient Mediterranean and Near East. Literature, funerary art/epitaphs. Archaeological evidence for burial practices and care of dead.

RELS 3543. Pagans, Christians, Barbarians: The World of Late Antiquity. (3 cr. ; A-F or Audit; Fall Odd Year)
Between classical and medieval, pagan and Christian, Roman and barbarian, the late antique world was a dynamic age. This course focuses on the Mediterranean region from the 2nd to the mid-7th century exploring such topics as the conversion of Constantine, the fall of Rome, barbarian invasions, the spread of Christianity, and the rise of Islam.

RELS 3544W. Martyrs, Monks, Crusaders: World Christianity, 100-1400. (GP,WI,HIS; 4 cr. ; Student Option; Fall Odd, Spring Even Year)
This course surveys the history of Christianity from its status as a persecuted minority religion of the Roman Empire to its dominant role in medieval Europe and Byzantium. We study Christian traditions in Asia and Africa as well as Europe with special attention to the relationship between Christianity and culture in the ancient and medieval world.

RELS 3545. History of Christianity II: From the Middle Ages to the Enlightenment. (3 cr. ; Student Option; Spring Odd Year)
The course examines the history of Christianity from the 13th century to the end of the 18th century. It begins with the Latin church at the height of its power before moving on to a consideration of the disastrous 14th century, the revolts of the 15th and the Reformations of the 16th centuries. The course closes by considering new challenges facing the church in an age of Enlightenment and Revolution.

RELS 3609. Medieval Art. (AH; 3 cr. ; Student Option; Every Fall & Spring)
Medieval art in Western Europe, from around 1000 to the mid-14th century. Works from France, Spain, Germany, Italy, and England examined in their historical context. Cross cultural relations, development of completely new forms of art and techniques, and the processes of realization.

RELS 3611. Eastern Orthodoxy: History and Culture. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Development of orthodox church in Byzantium, Islamic Near East, Slavic world, and diaspora. Impact of orthodoxy on political/cultural institutions. Interaction with other Christian/non-Christian communities. Orthodox spirituality/ aesthetics.

RELS 3612. Baroque Rome: Art and Politics in the Papal Capital. (HIS; 3 cr. ; Student Option; Fall Even Year)
Center of baroque culture--Rome--as city of spectacle and pageantry. Urban development. Major works in painting, sculpture, and architecture. Ecclesiastical/private patrons who transformed Rome into one of the world's great capitals.

RELS 3622. 'Sinners, Saints, and Savages': Religion in Early America. (; 3 cr. ; Student Option; Spring Odd Year)
Native American, Euro-American, and African American cosmologies. Perceptions of religious differences. Notions of us/them, civility, savagery. How religious beliefs shaped responses to colonization, enslavement, and revolution. prereq: Non-fr or instr consent

RELS 3623. Religion and the American Culture Wars. (HIS; 3 cr. ; Student Option; Every Fall)
Thomas Jefferson, Benjamin Franklin, James Madison, Thomas Paine, George Washington, and John Adams on religion, faith, and religion in politics. Deism. Enlightenment-era discussions about rational religion. Rise of evangelicalism. Separation of church/state, framers' original intent for first amendment. Religious Right.

RELS 3624. Atheists & Others: Religious Outsiders in the United States. (DSJ; 3 cr. ; Student Option; Periodic Spring)
What does it mean to be an atheist in the United States today? Atheists comprise a small percentage of the American population, but one with an increasingly visible presence in popular culture, political discourse, and everyday life. How do atheists organize into groups oriented toward identity-formation, social connection, and political action? prereq: SOC 1001 recommended

RELS 3625. Magic and Medicine. (3 cr. ; Student Option; Spring Odd Year)
Course examines how the line between magic and medicine has changed over time. From accusations of witchcraft to proclamations of scientific breakthrough, we will examine the relationship between the supernatural and the natural from the early modern period to today. Specific topics include the practice of exorcism, the concept of the "four humors,"?

the persecution of witches, the development of "voodoo,"? the effectiveness of placebos, and the professionalization of medicine. Throughout, we will ask how gender, class, and race have affected the construction of "magic" and "medicine."

RELS 3626V. Honors: Witches, Seers, and Saints: Women, Gender, and Religion in the US. (WI; 3 cr. ; A-F only; Periodic Fall & Spring)
This course examines the development and ramifications of gender ideologies within several religious groups in North America from the colonial period to the present and explores women's strategies that have contributed to and resisted these ideologies.

RELS 3626W. Witches, Seers, and Saints: Women, Gender, and Religion in the U.S.. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course examines the development and ramifications of gender ideologies within several religious groups in North America from the colonial period to the present and explores women's strategies that have contributed to and resisted these ideologies.

RELS 3627. The End of the World in Literature and History. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
For at least two and a half millennia, prophets, politicians, and poets have crafted terrifying accounts about the end of the world. This comparatist seminar examines the way different cultures have imagined a final apocalypse with particular attention to the political and social consequences of their visions. Students will read texts that focus on pandemic, extraterrestrial attack, nuclear holocaust, prophecy, cybernetic revolt, divine judgment, resource depletion, meteoric impact, or one of the many other ways in which humans write of their demise. They will use literary analysis to explore the many historical and contemporary wastelands they will encounter. They will write short papers and give in-class presentations on different kinds of apocalypse.

RELS 3628. Jewish American Literature: Religion, Culture, and the Immigrant Experience. (DSJ,HIS; 3 cr. ; Student Option; Every Spring)
Immigrant? Jewish? American? What do these labels mean, why are they applied, and do they ever cease to be applicable? Can we distinguish religion from culture, and what are the implications when we try? Why is it frequently asked whether Saul Bellow was ? really? a Jewish writer, but it is impossible to read Philip Roth as anything other than that? How does Grace Paley?s ?Jewishness? come through even when she is writing about non-Jewish characters? We will address these issues and others as we explore the literature growing out of the Jewish immigrant experience in America, as well as the literature by Jewish writers more firmly, though still sometimes anxiously, rooted in American soil. In this course we will engage in a highly contextualized and historicized study of Jewish American literature from the 19th century to today. We will discover in these texts how inherited Jewish culture and literary imaginings, developed over centuries of interaction between Jewish communities and the ? outside world,? get reexamined, questioned, rejected, reimagined, reintegrated, and transformed within the crucible of American experience. The discussions that ensue will also provide a framework for engaging with the creative energies and cultural productivity of more recent immigrant communities in the United States and beyond. Immigration and the experience of immigrant communities continues to be at the forefront of American consciousness, as immigrants work to create new meanings and new narratives for their lives, and as those who immigrated before them provide contested meanings for the impact of immigration on their own narratives. This course, though grounded in Jewish narratives, will therefore provide students with an expanded vocabulary and perspective for engaging in this central and very current debate within the American experience.

RELS 3631. Islam in America: A History of the Present. (3 cr. ; A-F or Audit; Periodic Fall & Summer)
From the ?Age of Discovery? and the African slave trade, to Malcolm X and the War on Terror, Islam has long been an integral part of the American landscape. In this course students will examine the history of Islam and social formation of Muslim communities in the United States. We will approach this history in the plural: as histories of Islam in America, paying particular attention to the different local and global dynamics that led to the migration of this racially, ethnically, and class variegated community. This course will explore how racial, national, cultural, and sectarian differences within and between Muslim communities shape and challenge the notion of a singular Islam or Muslim community. We will ask how and why Islam and Muslims have been characterized - both historically and today - as a "problem" in/for America. What does the emergence of terminology like ?American Muslim? and ? American Islam? tell us about these historical tensions, conceptions of good/bad citizenship, and identity politics more broadly, in the United States today?

RELS 3671. Hinduism. (3 cr. ; Student Option; Periodic Fall & Spring)
Development of Hinduism focusing on sectarian trends, modern religious practices, myths/rituals, pilgrimage patterns/ religious festivals. Interrelationship between Indian social structure/Hinduism.

RELS 3679. Religion and Society in Modern South Asia. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Survey of religious formations in premodern India (Hindu, Islamic, Sikh). Transformation of religious practice/thought. Religion and nationalism. Geopolitical dimensions of religious transformation in South Asia.

RELS 3704. Exploring the Quran: An intellectual odyssey with Islam's holy scripture. (AH; 3 cr. ; A-F or Audit; Every Spring)
This course explores the contents of the Quran and probes its place in the history of human civilization. Students will learn about, and critically reflect on, the following subjects: 1) the Quran's core ideas, stories, laws, parables, and arguments, 2) the historical context in which the Quran was first promulgated and codified, 3) the relationship between the Quran and the preceding literary traditions of the ancient world, in particular, the Bible and post-biblical Jewish and Christian writings, 4) Muslim utilization of the Quran towards intellectual, social, religious, cultural, and political ends, and 5) the pre-modern and modern scholarly traditions of interpreting the Quran.

RELS 3706W. Art of Islam. (AH,WI,GP; 4 cr. ; Student Option; Every Fall)
Architecture, painting, and other arts from Islam's origins to the 20th century. Cultural and political settings as well as themes that unify the diverse artistic styles of Islamic art will be considered.

RELS 3707W. Anthropology of the Middle East. (GP,WI,SOCS; 3 cr. ; Student Option; Fall Even Year)
Anthropological field methods of analyzing/ interpreting Middle Eastern cultures/societies.

RELS 3708. The Cultures of the Silk Road. (3 cr. ; Student Option; Every Fall & Spring)
Past/present state of cultures that flourished in Central Asia (present-day CA republics, Iran, Afghanistan) after Alexander the Great. Decline with opening of sea routes.

RELS 3711. The Islamic World. (GP,SOCS; 3 cr. ; Student Option; Every Fall)
Foundation of Islam in Arabian Peninsula, its spread to Asia and Africa. Islamic civilization, influence on Europe. Rise of capitalism, colonization. Islamic resurgence. State-society and development. Culture/conflict in Moslem societies. Gender and Islam. Islam and the West. Case studies.

RELS 3712. Islam: Religion and Culture. (; 3 cr. ; Student Option; Every Fall)
This course is a brief survey of the religion and civilization of Islam. It introduces students to 1) Islamic history from its inception in the seventh century CE to the present, with emphasis on the life of the Prophet Muhammad and the early Caliphate; 2) The authoritative texts of Islam, i.e. the Quran and Prophetic traditions (Hadith); 3) The institutions and discourses characteristic of Islamic civilization; and 4) The transformation of Muslim life and thought in the modern period. By taking this course, students become familiar with the chief ideas, characters, narratives, rites, localities, and movements associated with Islam. prereq: Soph or jr or sr

RELS 3714. Islam and the West. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Cultural/intellectual trends that have defined differences between Islam and the West. Development of historical, philosophical, and intellectual mindset of both spheres. Factors in tension, anxiety, and hatred between Muslim world and Europe and the United States.

RELS 3715. History of the Crusades. (GP,HIS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Crusading spirit in Europe. Results of classic medieval crusades ca 1095-1285. States established by crusaders in Near East. Internal European crusades. Chronological prolongation of crusading phenomenon.

RELS 3716. Gender and the Family in the Islamic World. (; 3 cr. ; A-F only; Periodic Spring)
This course explores the experiences of Muslim women and Muslim families from a historical and comparative perspective. Expanding the discussion on Muslim women's lives and experiences beyond the Middle East, by also centralizing on the experiences of Muslim women and families outside of this geographical area highlights the complex and diverse everyday experiences of Muslim women around the world. This wider lens exposes the limitations intrinsic in the stereotypical representation of Muslims in general and Muslim women in particular. We will explore the intricate web of gender and family power relations, and how these are contested and negotiated in these societies. Some of the themes the course explores include the debates on Muslim women and colonial representations, sexual politics, family, education and health, women and paid work, gender and human rights, and Islamic feminisms debates. prereq: At least soph; 1001 recommended

RELS 3717. Christians, Muslims, and Jews in the Middle Ages. (GP,HIS; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
A Pew Research survey of the global religious landscape in 2010 found 2.2 billion Christians (31.5% of the world?s population), 1.6 billion Muslims (23.2%), and 14 million Jews (.2%). In this class, we explore how the histories of these religious communities became deeply entangled in an age of diplomacy, trade, jihad, and crusade.

RELS 3718W. Christ in Islamic Thought. (WI; 3 cr. ; Student Option; Periodic Spring)
Course examines the history of the figure of Christ in Islamic thought, from the beginnings of Islam in the Qur'an and the Hadith to the recent 2013 book by Reza Aslan, Zealot. The course is based on close reading of primary sources from regions extending from Spain to Iran, and in various languages (in translation): Arabic, Greek, French, Farsi, and Italian. Course demonstrates how much the interpretation of the figure of Christ in Islamic thought belonged to specific historical contexts.

RELS 3721. North Africa since 1500: Islam, Colonialism, and Independence. (3 cr. ; Student Option; Spring Odd Year)
History of Maghrib (Morocco, Algeria, Tunisia, Libya, disputed territories of Western Sahara) from time of Ottoman expansion/Sharifian dynasties (Sa'dian/'Alawid) in 16th/17th Centuries to end of 20th century. Focus on encounter of Islamic cultures/societies of Maghrib with Africa/Europe.

RELS 3722. The Ottoman Empire. (GP,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Survey of Islam's most successful empire, from its founding circa 1300 to its demise in 1923. Lands, institutions, peoples, historical legacy.

RELS 3724. Islam and Modernity in South Asia. (3 cr. ; A-F only; Periodic Fall & Spring)
This course explores the multiple genealogical trajectories of Islamic thought in South Asia through the varied lens of its literary traditions. For centuries, literature has remained an important site for the expression of Islamic identity and its interaction with the larger history of the subcontinent. Muslim writers have traversed diverse domains of human experience through multiple genres: while poetry has been a widely celebrated genre for the expression of private love, drama has emerged as a crucial site for public politics and activism. In this course, students will read texts that have circulated across South Asia and interpret them in relation to enduring questions about power, justice, identity, community and love (both human and divine) in Islam. Reading a wide array of works from diverse temporal and spatial locations, this course examines how the aesthetic and discursive world of South Asia provides a terrain on which the Islamic "socius" of the region has come to define itself in a unique manner. In addition, we also investigate how these literary cultures-at different historical junctures-articulated a secular ethos to define Hindu-Muslim relations in the subcontinent. We further discuss questions of genres-epic, romance, drama, novel and lyric-as a way of thinking about the circulation of literary forms across languages, cultures and national spaces in the past and the present.

RELS 3777. The Diversity of Traditions: Indian Empires after 1200. (3 cr. ; Student Option; Periodic Fall & Spring)
This class considers the development of Indian and Pakistani art and architecture from the introduction of Islam as a major political power at the end of the 12th century to the colonial empires of the 18th century. We will study how South Asia's diverse ethnic and religious communities interacted, observing how visual and material cultures reflect differences, adaptations, and shared aesthetic practices within this diversity of traditions. Students in this class will have mastered a body of knowledge about Indian art and probed multiple modes of inquiry. We will explore how Muslim rulers brought new traditions yet maintained many older ones making, for example, the first mosque in India that combines Muslim and Indic visual idioms. We will study the developments leading to magnificent structures, such as the Taj Mahal, asking why such a structure could be built when Islam discourages monumental mausolea. In what ways the schools of painting that are the products of both Muslim and Hindu rulers different and similar? The course will also consider artistic production in the important Hindu kingdoms that ruled India concurrently with the great Muslim powers. In the 18th century, colonialist forces enter the subcontinent, resulting in significant innovative artistic trends. Among questions we will ask is how did these kingdoms influence one another? Throughout we will probe which forms and ideas seem to be inherently Indian, asking which ones transcend dynastic, geographic and religious differences and which forms and ideas are consistent throughout these periods of political and ideological change. To do all this we must constantly consider how South Asia's diverse ethnic and religious communities interact. There are no prerequisites for this course.

RELS 3896. Internship in Religion, Society, and Culture. (; 1-4 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
Guided academic and vocational reflection on an internship supervised by a religious studies faculty member. Intended to support an applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals which are related to the academic study of religion, society, and culture. A student may only earn credit for a given internship through one course at a time.

RELS 3970. Supplemental Discussion in Religious Studies. (; 1 cr. [max 3 cr.] ; Student Option; Periodic Fall & Spring)
Extra discussion section attached to a religious studies course/event.

RELS 3993. Directed Studies. (; 1-4 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Student works with faculty on a subject decided upon by both.

RELS 4049. Religion and Culture. (; 3 cr. ; Student Option; Periodic Fall)
Religious beliefs and world views cross-culturally. Religious dimensions of human life through theories of origins, functions, and forms (e.g. myth, ritual, symbolism) of religion in society. prereq: ANTH 1003 or ANTH 1005 or instr consent

RELS 4309. Religion in American Public Life: Culture, Politics, and Communities. (CIV; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
How diversity/vitality of American religion shape public life. How religious groups engage in political action, foster understandings of democracy/styles of civic participation. Volunteering/service activities. Race, poverty, the family, sexuality. prereq: Soc majors/minors must register A-F

RELS 4952. Capstone. (; 1-4 cr. ; A-F or Audit; Every Fall & Spring)
Independent research/writing under supervision of faculty sponsor. In-depth research paper/ comparable project to be completed in conjunction with RELS course. prereq: Limited to RELS majors and second semester junior and seniors. Please see director of Undergraduate Studies for permission.

RELS 5001. Theory and Method in the Study of Religion: Critical Approaches to the Study of Religion. (; 3 cr. ; Student Option; Every Spring)
Theoretical/methodological issues in academic study of religion. Theories of origin, character, and function of religion as a human phenomenon. Psychological, sociological, anthropological, and phenomenological

perspectives. prereq: Sr or grad student or instr consent

RELS 5013W. Biblical Law and Jewish Ethics. (WI; 3 cr. ; Student Option; Periodic Fall & Spring)
This course introduces students to the original meaning and significance of religious law and ethics within Judaism. Law is the single most important part of Jewish history and identity. At the same time, law is also the least understood part of Judaism and has often been the source of criticism and hatred. We shall therefore confront one of the most important parts of Jewish civilization and seek to understand it on its own terms. In demonstrating how law becomes a fundamental religious and ethical ideal, the course will focus on the biblical and Rabbinic periods but spans the entire history of Judaism. Consistent with the First Amendment, the approach taken is secular. There are no prerequisites: the course is open to all qualified students. The course begins with ideas of law in ancient Babylon and then studies the ongoing history of those ideas. The biblical idea that a covenant binds Israel to God, along with its implications for human worth - including the view of woman as person - will be examined. Comparative cultural issues include the reinterpretations of covenant within Christianity and Islam. The course investigates the rabbinic concept of oral law, the use of law to maintain the civil and religious stability of the Jewish people, and the kabbalistic transformation of law. The course concludes with contemporary Jewish thinkers who return to the Bible while seeking to establish a modern system of universal ethics. The premise of the course is the discipline of academic religious studies. The assumptions of the course are therefore academic and secular, as required by the First Amendment. All texts and all religious traditions will be examined analytically and critically. Students are expected to understand and master this approach, which includes questioning conventional cultural assumptions about the composition and authorship of the Bible. Willingness to ask such questions and openness to new ways of thinking are essential to success in the course.

RELS 5070. Topics in Religious Studies. (; 3 cr. [max 18 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics specified in Class Schedule and Course Guide.

RELS 5071. Greek and Hellenistic Religions. (; 3 cr. ; Student Option; Periodic Spring)
Greek religion from Bronze Age to Hellenistic times. Literature, art, archaeology. Homer/ Olympian deities. Ritual performance, prayer, sacrifice. Temple architecture. Death/afterlife. Mystery cults. Philosophical religion. Near Eastern salvation religions. Meets with 3071.

RELS 5072. The Birth of Christianity. (AH; 3 cr. ; Student Option; Periodic Fall & Spring)
Early Jesus movement in cultural/historical setting. Origins in Judaism. Traditions about Jesus. Apostle Paul, controversies/interpreters. Authority, religious practice, structure. Emergence of canon. Contemporary methods of New Testament study. Biblical writings as history/narrative. CNES 3072/CNES 5072/ RELS 3072/RELS 5072 meet together.

RELS 5115. Midrash: Reading and Retelling the Hebrew Bible. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How did the Jews of the first seven centuries of the common era read and understand the Hebrew Bible? What were the problems they faced -- interpretive, historical, theological -- in trying to apply their holy scriptures? This course explores key issues that led to the development of a new form of Judaism in late antiquity, rabbinic Judaism, and its methods of scriptural interpretation. The course?s study will focus on the forms and practices of rabbinic scriptural interpretation (midrash) as it developed in Roman Palestine and Sasanian Babylonia, focusing on key narrative and legal passages in the Five Books of Moses (Torah). A main focus of the course will be on the ways the rabbis adapted the Hebrew Bible to express their own core concerns.

RELS 5121. Gender and Body in Early Christianity. (AH; 3 cr. ; Student Option; Fall Odd Year)
Ancient Christians, like any other social group in the ancient world, represented themselves through images, stories, and discourses using the cultural tools available to them in their own contexts. In this course, we will explore two key texts of early Christianity (1 Corinthians and the Gospel of Mark) with special attention to how representations of the body and gender served to communicate the nature of what it meant to be Christian for these authors. The study of ancient material offers a space to acquire the skills of critical analysis of body and gender dynamics so that we can better understand the roles that the body and gender play in shaping our self-identity, social interaction, and societal structures.

RELS 5204. The Dead Sea Scrolls. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to Dead Sea Scrolls and Qumran. Contents of Dead Sea Scrolls, significance for development of Bible. Background of Judaism and Christianity. Archaeological site of Qumran. The course will focus on the material in translation and academic scholarship on the literature and archaeological site. Open to graduate students across the college; knowledge of classical Hebrew will not be required. The course is open to upper level undergraduate students with permission of the instructor.

RELS 5254. Archaeology of Ritual and Religion. (3 cr. ; Student Option; Fall Even Year)
The course discusses evidence for the origins of religion and its diverse roles in human societies over millennia. It focuses on how artifacts and architecture are essential to religious experience. It asks: What constitutes religion for different cultures? Why is religion at the heart of politics, social life, and cultural imagination?

RELS 5504. Development of Israelite Religion II. (; 3 cr. ; Student Option; Periodic Fall)
Ancient Judaism from the Persian restoration (520 B.C.E.) to Roman times (2nd century C.E.). Religious, cultural, and historical developments are examined to understand Jewish life, work, and worship under a succession of foreign empires: Persian, Greek, Roman.

RELS 5612. Baroque Rome: Art and Politics in the Papal Capital. (; 3 cr. ; Student Option; Fall Even Year)
Center of baroque culture--Rome--as city of spectacle and pageantry. Urban development. Major works in painting, sculpture, and architecture. Ecclesiastical/private patrons who transformed Rome into one of the world's great capitals.

RELS 5707W. Anthropology of the Middle East. (GP,WI,SOCS; 3 cr. ; Student Option; Fall Even Year)
Anthropological field methods of analyzing/ interpreting Middle Eastern cultures/societies.

RELS 5721. North Africa since 1500: Islam, Colonialism, and Independence. (3 cr. ; Student Option; Spring Odd Year)
History of Maghrib (Morocco, Algeria, Tunisia, Libya, disputed territories of Western Sahara) from time of Ottoman expansion/Sharifian dynasties (Sa'dian/'Alawid) in 16th/17th Centuries to end of 20th century. Focus on encounter of Islamic cultures/societies of Maghrib with Africa/Europe.

RELS 5777. The Diversity of Traditions: Indian Empires after 1200. (3 cr. ; Student Option; Periodic Fall & Spring)
This class considers the development of Indian and Pakistani art and architecture from the introduction of Islam as a major political power at the end of the 12th century to the colonial empires of the 18th century. We will study how South Asia?s diverse ethnic and religious communities interacted, observing how visual and material cultures reflect differences, adaptations, and shared aesthetic practices within this diversity of traditions. Students in this class will have mastered a body of knowledge about Indian art and probed multiple modes of inquiry. We will explore how Muslim rulers brought new traditions yet maintained many older ones making, for example, the first mosque in India that combines Muslim and Indic visual idioms. We will study the developments leading to magnificent structures, such as the Taj Mahal, asking why such a structure could be built when Islam discourages monumental mausolea. In what ways the schools of painting that are the products of both Muslim and Hindu rulers different and similar? The course will also consider artistic production in the important Hindu kingdoms that ruled India concurrently with the great Muslim powers. In the 18th century, colonialist forces enter the subcontinent, resulting in significant innovative artistic trends. Among questions we will ask is how did these kingdoms influence one another? Throughout we will probe which forms and ideas seem to be inherently Indian, asking which ones transcend dynastic, geographic and religious differences and which forms and ideas are consistent throughout these periods

of political and ideological change. To do all this we must constantly consider how South Asia's diverse ethnic and religious communities interact.

RELS 5781. Age of Empire: The Mughals, Safavids, and Ottomans. (3 cr. ; Student Option; Periodic Fall)
Artistic developments under the three most powerful Islamic empires of the 16th through 19th centuries: Ottomans of Turkey; Safavids of Iran; Mughals of India. Roles of religion and state will be considered to understand their artistic production.

RELS 5993. Directed Studies. (; 1-4 cr. [max 24 cr.] ; Student Option; Every Fall & Spring)
TBD prereq: instr consent

Retail Merchandising (RM)

RM 1201. Fashion, Ethics, and Consumption. (CIV; 3 cr. ; Student Option; Every Fall & Spring)
Apparel business. Overview of steps in the process of creating, merchandising, selling, and consuming apparel. Various ethical positions reflected in manufacturer, retailer, and consumer decision making are considered.

RM 2196. Work Experience in Retail Merchandising. (; 1-4 cr. [max 8 cr.] ; S-N only; Every Fall, Spring & Summer)
Supervised work experience in business, industry, or government, related to student's area of study. Integrative paper or project. prereq: Plan submitted/approved by [adviser, internship supervisor], written approval of supervisor, instr consent

RM 2215. Introduction to Retail Merchandising. (; 3 cr. ; A-F or Audit; Every Spring)
Overview of retailing management. Aspects of retailing management in global, multi-channel retail environment. Strategies/tactics to make decisions to operate retail business. Retail management principles covered.

RM 2234. Retailing in a Digital Age. (TS; 3 cr. ; A-F only; Every Spring)
Students will explore and evaluate the impact of emergence of retail technology on the retail industry and consumers as well as on the society at large. Changes in the retail business and consumer behaviors will be examined in relation to emerging technologies. Both benefits and concerns related to digital retailing will be discussed.

RM 3124. Consumers of Design. (3 cr. ; A-F only; Every Fall & Spring)
Contemporary approaches to consumer behavior. prereq: retail merchandising major or minor

RM 3170. Topics in Retail Merchandising. (; 1-4 cr. [max 16 cr.] ; A-F or Audit; Periodic Fall, Spring & Summer)
In-depth investigation of specific topic.

RM 3196. Field Study: National or International. (; 1-4 cr. [max 10 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Faculty-directed field study in national or international setting. prereq: instr consent

RM 3201. Career and Internship Preparation for Retail Merchandising. (; 1 cr. ; A-F only; Every Fall & Spring)
Research career opportunities related to retail industry, set career objectives based on an assessment of individual skills/interests, and identify job search skills to implement a transition from college to employment. prereq: Retail merchandising major

RM 3242. Retail Buying. (; 3 cr. ; A-F or Audit; Every Fall)
Principles/mathematics of merchandise inventory control, merchandise selection. prereq: [2215 or DHA 2215], [MATH 1031 or MATH 1051 or MATH 1142 or MATH 1151 or MATH 1155 or MATH 1271 or CALG student group], [jr or sr], retail merchandising [major or minor]] or instr consent

RM 3243. Visual Merchandising. (3 cr. ; A-F or Audit; Every Spring)
Retail store environment. Physical/psychological effects that initiate/motivate consumer behavior. Merchandise display: creativity, department layout, fixturing, lighting, cross merchandising, visual resources, signing, maintenance. prereq: 2215, [DHA major or minor or instr consent]

RM 4117W. Retail Environments and Human Behavior. (WI; 3 cr. ; A-F only; Every Spring)
Theory/research related to designed environments across retail channels. prereq: 2215 or DHA 2215, [jr or sr or grad student], [design major or minor or instr consent]

RM 4123. Living in a Consumer Society. (; 3 cr. ; A-F only; Fall Odd Year)
Consumerism within U.S. society. Commodification of health care, education, and production of news. Commercialization of public space/culture. What drives consumer society. How meaning is manufactured. What the lived experiences are of consumers today. Postmodern market. Alternatives to consumer society. prereq: Sr, retail merchandising major or minor

RM 4160H. Honors Capstone Project. (; 2 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Individualizes honors experience by connecting aspects of major program with special academic interests. prereq: Retail merchandising honors

RM 4193. Directed Study in Retail Merchandising. (; 1-4 cr. [max 8 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Independent study in retail merchandising under tutorial guidance. prereq: Undergrad, instr consent

RM 4196. Internship in Retail Merchandising. (1-2 cr. ; S-N only; Every Fall, Spring & Summer)
Supervised work experience relating activity in business, industry, or government to student's area of study. Integrative paper or project may be required. prereq: Completion of at least one-half of professional sequence, plan submitted/approved in advance by [adviser, internship supervisor], written consent of faculty supervisor, instr consent

RM 4212W. Dress, Society, and Culture. (WI; 3 cr. ; A-F or Audit; Every Fall)
Contemporary dress from diverse cultures within/outside USA analyzed using social science concepts. Dress as nonverbal communication system. prereq: [Jr or sr or grad student], [design major or minor or instr consent]

RM 4216. Retail Promotions. (3 cr. [max 4 cr.] ; A-F or Audit; Every Fall)
Role of integrated marketing communications in retail businesses. Promotion techniques/media characteristics. Application of theories behind consumer decision making. prereq: 2215, [jr or sr or grad student], [DHA major or minor or instr consent]

RM 4217. International Retail Markets. (GP; 3 cr. ; A-F or Audit; Every Spring)
Operating a retail business in foreign countries. How international markets differ from U.S. market. Effects of sociocultural systems within foreign countries. Theories of international trade. Interface between countries and firms. Strategic alternatives. prereq: 2215 or DHA 2215, [jr or sr or grad student], [DHA major or minor or instr consent]

RM 4247. Advanced Buying and Sourcing. (; 3 cr. ; A-F or Audit; Every Spring)
Technology application for buying/sourcing. Six-month dollar merchandise planning, assortment planning, market purchase and sales promotions planning, inventory management, costing, markdowns, timing, and sourcing. prereq: RM 2215, RM 3242, [DHA major or minor or instr consent]

RM 4248. Creative Leadership in Retailing. (3 cr. ; A-F only; Every Fall)
Theory/research on creative leadership. Opportunities to apply knowledge to contemporary issues facing practicing retail leaders.

Robotics (ROB)

ROB 5994. Directed Research. (1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed research arranged with faculty member.

Russian (RUSS)

RUSS 1101. Beginning Russian I. (; 5 cr. ; Student Option; Every Fall)
Listening, speaking, reading, writing.

RUSS 1102. Beginning Russian II. (; 5 cr. ; Student Option; Every Spring)
Listening, speaking, reading, writing. prereq: 1101 or equiv

RUSS 3001. Intermediate Russian I. (; 5 cr. ; Student Option; Every Fall)
Conversation, composition, grammar review, translation, readings in literature. prereq: 1102 or instr consent

RUSS 3002. Intermediate Russian II. (; 5 cr. ; Student Option; Every Spring)
Expansion of experience in speaking, reading, and understanding Russian. Reading contemporary texts. prereq: 3001 or instr consent

RUSS 3101. Advanced Russian I. (4 cr. ; Student Option; Every Fall)
Advanced grammar, conversation, composition, reading. prereq: 3002 or 4104 or instr consent

RUSS 3102. Advanced Russian II. (4 cr. ; Student Option; Every Spring)
Advanced grammar, conversation, composition, reading. prereq: 3101 or 4111 or instr consent

RUSS 3105. Russian Poetry and Prose. (; 3 cr. ; Student Option; Periodic Fall)
Appreciation of literary values through stylistic analysis and literary interpretation; analysis of humanistic elements. Readings in Russian. prereq: Russ 3102 or concurrent enrollment in Russ 3102 or permission

RUSS 3311V. Honors Major Project in Russian. (WI; 3-4 cr. ; A-F only; Every Fall & Spring)
Directed research/writing in student's chosen field. prereq: Advanced Russian major

RUSS 3311W. Russian Major Project. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Directed research and writing in student's chosen field. prereq: Advanced Russian major

RUSS 3404. Tolstoy in Translation. (GP,LITR; 3 cr. ; Student Option; Spring Odd Year)
Novels, stories, and philosophical writings of Leo Tolstoy.

RUSS 3411. Dostoevsky in Translation. (GP,LITR; 3 cr. ; Student Option; Spring Even Year)
Novels, stories, and miscellaneous writings of Fyodor Dostoevsky.

RUSS 3421. Literature: Middle Ages to Dostoevsky in Translation. (LITR; 3 cr. ; Student Option; Every Fall)
Russian literature from about 1000 A.D. to mid-19th century; emphasizing writers of the first half of the 19th century.

RUSS 3422. Literature: Tolstoy to the Present in Translation. (LITR; 3 cr. ; Student Option; Every Spring)
Survey of Russian literature from mid-19th century to the present: realism, modernism, feminism and other trends.

RUSS 3512. Russian Art and Culture. (AH,GP; 3 cr. ; Student Option; Fall Odd Year)
Major trends in Russian visual arts in context of social, political, and ideological questions.

RUSS 3604. Russia At The Movies: A Survey Of The History Of Russian Cinema. (AH; 3 cr. ; Student Option; Every Spring)
This course is designed to provide a chronological overview of major developments, trends, experiments, searches, traditions, and conventions of Russian cinematic art examined in the context of the historical and cultural background of the 20th and early 21st centuries. The history of cinema is intrinsically connected to political, historical, cultural and social developments.For each epoch of development we will first outline the historical and cultural context before investigating the major films and themes of the period. We will elaborate on those films that have made an important contribution to cinematic or cultural history, both in Russia and the world. RUSS 3604/5604 meets the Liberal Education core requirement in Arts and Humanities. Through a close study of film we learn about how this art medium reflects and expresses human experience and engages us through the exploration of the formal and aesthetic dimensions of film, as well as the study of cultural, social, and historical background in which it is deeply steeped.

RUSS 3900. Topics in Russian Language, Literature, and Culture. (; 1-4 cr. [max 16 cr.] ; Student Option; Periodic Fall & Spring)
Variable topics in Russian language, literature, and culture. Consult department for details. prereq: 1102 for language topics

RUSS 3993. Directed Studies. (1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Guided individual study. Prereq instr consent, dept consent, college consent.

RUSS 4101. Beginning Russian for Graduate Research I. (; 5 cr. ; Student Option; Every Fall)
Listening, speaking, reading, writing.

RUSS 4102. Beginning Russian for Graduate Research II. (; 5 cr. ; Student Option; Every Spring)
Listening, speaking, reading, writing. prereq: 4101

RUSS 4103. Intermediate Russian for Graduate Research I. (; 5 cr. ; Student Option; Every Fall)
Conversation, composition, grammar review, translation, readings in literature. prereq: 4102

RUSS 4104. Intermediate Russian II. (; 5 cr. ; Student Option; Every Spring)
Speaking, reading, and understanding Russian. Reading contemporary texts. prereq: 4103

RUSS 4111. Advanced Russian for Graduate Research I. (4 cr. ; Student Option; Every Fall)
Advanced grammar, conversation, composition, reading. prereq: 3002 or 4104 or instr consent

RUSS 4112. Advanced Russian for Graduate Research II. (4 cr. ; Student Option; Every Spring)
Advanced grammar, conversation, composition, reading. prereq: 3101 or 4111 or instr consent

RUSS 5404. Tolstoy in Translation. (GP,LITR; 3 cr. ; Student Option; Spring Even Year)
Novels, stories, and philosophical writings of Leo Tolstoy.

RUSS 5411. Dostoevsky in Translation. (GP,LITR; 3 cr. ; Student Option; Spring Even Year)
Novels, stories, and other writings of Fyodor Dostoevsky.

RUSS 5421. Literature: Middle Ages to Dostoevsky in Translation. (LITR; 3 cr. ; Student Option; Every Fall)
Russian literature from about 1000 A.D. to mid-19th century; emphasizing writers of the first half of the 19th century.

RUSS 5422. Literature: Tolstoy to the Present in Translation. (LITR; 3 cr. ; Student Option; Every Spring)
Survey of Russian literature from mid-19th century to the present: realism, modernism, feminism and other trends.

RUSS 5604. Russia At The Movies: A Survey Of The History Of Russian Cinema. (AH; 3 cr. ; Student Option; Every Spring)
This course is designed to provide a chronological overview of major developments, trends, experiments, searches, traditions, and conventions of Russian cinematic art examined in the context of the historical and cultural background of the 20th and early 21st centuries. The history of cinema is intrinsically connected to political, historical, cultural and social developments.For each epoch of development we will first outline the historical and cultural context before investigating the major films and themes of the period. We will elaborate on those films that have made an important contribution to cinematic or cultural history, both in Russia and the world. RUSS 3604/5604 meets the Liberal Education core requirement in Arts and Humanities. Through a close study of film we learn about how this art medium reflects and expresses human experience and engages us through the exploration of the formal and aesthetic dimensions of film, as well as the study of cultural, social, and historical background in which it is deeply steeped.

RUSS 5900. Topics in Russian Language, Literature, and Culture. (; 1-4 cr. [max 3 cr.] ; Student Option; Periodic Fall)
Variable topics in Russian language, literature, and culture. prereq: 1102 for language topics

RUSS 5993. Directed Studies. (1-4 cr. [max 16 cr.] ; Student Option; Every Fall & Spring)
Guided individual study. Prereq instr consent, dept consent, college consent.

Scandinavian (SCAN)

SCAN 3011W. Readings in Scandinavian Languages. (WI; 4 cr. ; Student Option; Every Fall)
Reading/composition in Danish, Norwegian, and Swedish for advanced proficiency. Introduction to differences between the three languages. prereq: [Dan or Nor or Swed][1004 or 4004] or instr consent

SCAN 3501W. Scandinavian Culture Past and Present. (GP,WI; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Cultural, social, and political developments; principal views and core values; major cultural figures; Scandinavian mentality. Readings in translation for nonmajors. Invited lectures on central topics within selected areas of study.

SCAN 3502. Scandinavian Myths. (GP,LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Literary and cultural investigation of the popular beliefs, myths, and religion of the medieval Scandinavians; the interaction of paganism and Christianity; the reflection of myths in Old Scandinavian literature and art. All readings in English.

SCAN 3503. Scandinavian Folklore. (GP,LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Literary and folkloristic investigation of Scandinavian folktales and legends. Readings in translation for nonmajors.

SCAN 3504. Emigration, Immigration, Integration: The Nordic Experience. (GP,HIS; 3 cr. ; Student Option; Every Fall & Spring)
Issues of origin/language, immigration/ settlement, traditions/values, culture/politics, and transgressions of boundaries from the old to the new studied through photos, diaries, letters, stories, and novels by Moberg, Rolvaag, Ager, and other pioneers. All readings in translation.

SCAN 3505. Scandinavian Fiction From 1890 to Present. (LITR; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Modernity's search for new forms to represent changing historical situations. Ibsen, Strindberg, Hamsun, Selma Lagerlof, Hjalmar Bergman, Paar Lagerkvist, Karen Blixen, Moa Martinson, Tarjei Vesaas, Edith Sodergran, Ingmar Bergman, Lars Gustafsson. All readings in translation.

SCAN 3601. Great Literary Works of Scandinavia. (LITR; 3 cr. ; Student Option; Fall Odd Year)
Major literary works from the Middle Ages to the present. Readings in translation.

SCAN 3602. The Literary Fairy Tale in Scandinavia. (LITR; 3 cr. ; Student Option; Fall Even, Spr & Summer Odd Yr)
Literary fairy tales from Scandinavia, especially Hans Christian Andersen. Readings in translation for non-majors.

SCAN 3604W. Living Pictures: An Introduction to Nordic Cinema. (AH,WI; 3 cr. ; Student Option; Spring Odd Year)
Since the early days of the twentieth century, debates have proliferated in the Nordic countries about film's nature and function, whether as popular entertainment, high art, or a dynamic cultural artifact important in defining national and regional identities. In this course, History of Nordic Cinema, we will survey discrete moments in Nordic film history (viewing films from Denmark, Finland, Iceland, Norway and Sweden) and contextualize them within broader developments in global cinema. Particularly important in this regard will be Nordic Cinema's love-hate relationship with Hollywood and its complicated status as European Cinema. We will begin in the beginning, with examples of Scandinavia's often-underestimated role as an international, artistic, and popular culture powerhouse in the silent era up through WWI. We'll go on to explore Nordic film productions intended mainly for domestic audiences and juxtapose these with the emergence of a compelling modernist, art-house cinema tradition revolving around the international figure of the auteur director, including Ingmar Bergman and later, Aki Kaurism?ki. We'll consider examples of 60s and 70s political, avant-garde cinema (reverberations of the French Nouvelle Vague); talk about the unique development of state-funded structures for film production in these small countries; and end with a survey of recent Nordic films and movements such as Dogme 95 that illustrates ways in which small national cinemas continue to grapple with new iterations of globalization. In this course, students will be exposed to visual cultures from all five Nordic countries and consider the implications of reading film at regional, national and global levels. In short, Nordic Cinema provides a vital and vibrant case study with which to consider a broad range of issues involving the aesthetics and politics of cinema in the world.

SCAN 3605. The Scandinavian Short Story. (LITR; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Short stories by important 19th/20th-century authors from five Scandinavian countries. Genre theory/practical criticism. Readings in English for non-majors.

SCAN 3613. Children's Literature in Scandinavia. (LITR; 3 cr. ; Student Option; Fall Even Year)
Analysis and discussion of representative works in Scandinavian children.s literature from picture books to young adult books using a variety of critical methods of interpretation. Taught in English.

SCAN 3614. Blood on Snow: Scandinavian Thrillers in Fiction and Film. (GP,LITR; 3 cr. ; Student Option; Periodic Fall & Spring)
Scandinavian crime novels/films against background of peaceful welfare states. Readings in translation for non-majors. Scandinavian majors/minors read excerpts in specific languages.

SCAN 3617. Scandinavian Gothic: Horror and the Uncanny in Nordic Literature and Media. (AH,GP; 3 cr. ; Student Option; Spring Even Year)
Scandinavia is popularly thought of as a bastion of social democracy, gender equality, and sleek modern design. Despite this well-earned reputation for political and aesthetic progressivism, there has also been a significant undercurrent of anti-rationalism and supernatural horror in Nordic culture. In Gothic fiction, the unwelcome appearance of primitive, irrational, and malevolent forces often takes the form of supernatural or monstrous figures?ghosts, vampires, witches, and trolls. As conventions established abroad mingled with a home-grown tradition of social realism, the Scandinavian Gothic became a vehicle for representing marginalized voices and revealing the shortcomings of Nordic societies. We will examine Gothic works of literature, film, television, popular music, and visual art. Through this examination, we will build an analytical vocabulary to formally analyze works of Gothic art in all of these media, and will practice that through in-class discussions as well as formal and informal writing.

SCAN 3634. Scandinavian Women Writers. (GP,LITR; 3 cr. ; Student Option; Spring Odd Year)
Investigation of issues important to women as articulated by Scandinavian women writers. Historical overview of women's writing in Scandinavia and in-depth investigation of texts by contemporary women writers. All readings in translation.

SCAN 3670. Topics in Scandinavian Studies. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Topic may focus on a specific author, group of authors, genre, period, or subject matter. Topics specified in Class Schedule. Readings in English for nonmajors. May meet with 5670.

SCAN 3993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading and study. Prereq instr consent, dept consent, college consent.

SCAN 4011. Readings in Scandinavian Languages. (; 2 cr. ; Student Option; Every Fall)
Meets with 3011W. See 3011W for description. prereq: Grad student

SCAN 5502. The Icelandic Saga. (; 3 cr. ; Student Option;)
Study of the sagas written in 13th-century Iceland. Discussion includes cultural and historical information about medieval Iceland and analysis of a selection of saga texts using contemporary critical approaches. All readings in translation.

SCAN 5605. The Scandinavian Short Story. (LITR; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Short stories by 19th-20th century authors from all five Scandinavian countries. Genre theory/ practical criticism. Readings in English for non-majors.

SCAN 5614. Blood on Snow: Scandinavian Thrillers in Fiction and Film. (3 cr. ; Student Option; Periodic Fall & Spring)
Scandinavian crime novels/films against background of peaceful welfare states. Readings in translation for non-majors. Scandinavian majors/minors read excerpts in specific languages.

SCAN 5617. Scandinavian Gothic: Horror and the Uncanny in Nordic Literature and Media. (AH,GP; 3 cr. ; Student Option; Spring Even Year)
Scandinavia is popularly thought of as a bastion of social democracy, gender equality, and sleek modern design. Despite this well-earned reputation for political and aesthetic progressivism, there has also been a significant undercurrent of anti-rationalism and supernatural horror in Nordic culture. In Gothic fiction, the unwelcome appearance of primitive, irrational, and malevolent forces often takes the form of supernatural or monstrous figures?ghosts, vampires, witches, and trolls. As conventions established abroad mingled with a home-grown tradition of social realism, the Scandinavian Gothic became a vehicle for representing marginalized voices and revealing the shortcomings of Nordic societies. We will examine Gothic works of literature, film, television, popular music, and visual art. Through this examination, we will build an analytical vocabulary to formally analyze works of Gothic art in all of these media, and will

practice that through in-class discussions as well as formal and informal writing.

SCAN 5634. Scandinavian Women Writers. (GP,LITR; 3 cr. ; Student Option; Fall Even, Spring Odd Year)
Issues important to women as articulated by Scandinavian women writers. Historical overview of women's writing in Scandinavia. In-depth investigation of texts by contemporary women writers. All readings in translation.

SCAN 5670. Topics in Scandinavian Studies. (; 3 cr. [max 12 cr.] ; Student Option; Periodic Fall & Spring)
Topic may focus on a specific author, group of authors, genre, period, or subject matter. Topics specified in Class Schedule. Readings in English for nonmajors. May meet with 3670.

SCAN 5701. Old Norse Language and Literature. (; 3 cr. ; Student Option; Every Fall)
Acquisition of a reading knowledge of Old Norse; linguistic, philological and literary study of Old Norse language and literature.

SCAN 5703. Old Norse Poetry. (3 cr. ; Student Option; Periodic Fall)
Reading and analysis of either eddic poetry from the Poetic Edda or skaldic poetry. Texts read in Old Norse.

SCAN 5993. Directed Studies. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading and study. Prereq instr consent, dept consent, college consent.

School for Field Studies (SFS)

SFS 2001. Language, Culture and Society of Chile. (2 cr. ; Student Option; Every Fall, Spring & Summer)
The Language, Culture, and Society of Chile course is provided in two integrated modules: I. Chile: History, Culture, and Society. Rodrigo Hernandez & Guest Lecturers I. Spanish The Spanish module is designed to provide students with working knowledge of the Spanish language for communication, according to their initial level of competence. The Society and Culture module aims to provide students with an initial national and local historical and cultural context for understanding the cultural and political complexities of contemporary Chile. The Spanish module comprises 20 hours and the Society ad Culture module comprises 10 hours, for a total of 30 instructional hours, equivalent to 2 credits. Instructional parts of the course will be complemented by opportunities for participation in community and cultural activities. The course does not provide cultural immersion, rather it aims to provide students with initial tools they can build on outside class.

SFS 2010. Religion and Culture of Bhutan. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SFS 2050. Language, Culture, and Society of Costa Rica. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 2060. Introduction to Swahili Language and East African Tribal Communities. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 2070. Language, Culture, and Society of Panama. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 2080. Language and Culture of Cambodia. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 2090. Language, Culture and Society of Peru. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3000. Tourism and Island Systems: Assessment of Sustainable Practices. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SFS 3020. Environmental Policy and Socioeconomic Values. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3030. Economic and Ethical Issues in Sustainable Development. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3040. Political and Socioeconomic Dimensions of Environment. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SFS 3050. Land Use, Natural Resources and Conservation. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SFS 3060. Mountain Ecology. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SFS 3070. Field Practicum in Public Health and Environment. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3071. Human Dimentions of Conservation. (ENV,SOCS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
The concepts of human dimensions in conservation dates back to Aldo Leopold, one of the key pioneers of land ethics and conservation. Conservation is a complex undertaking and partly entails involving humans. It has therefore increasingly become important to address or relate human dimensions to conservation and management of natural resources. This course will examine the relationship between people, the environment and associated natural resources. In the process, it will explore how people?s behavior, values and knowledge, influence and are affected by decisions on management of natural resources and conservation of wildlife. It will use social science knowledge and tools to effectively incorporate societal values into conservation planning and decision-making, and to build stronger and more diverse partnerships. Students will also learn human dimensions concepts, the tools and methods that can be used in conservation outreach and communication. This course will focus on the human dimensions on conservation in the Amboseli Ecosystem in the South-eastern rangelands of Kenya. Students and Faculty will examine the cultural, economic, political and social context of the Maasai people and other ethnic groups in relationship to wildlife and natural resources utilization and conservation. To understand the current and future management and conservation of wildlife and other natural resources in the region, students will also examine the influence of traditional beliefs and attitudes in natural resource use and conservation practices. The influence of modern lifestyle, conservation and management practices, national policies and laws as well as land uses and socio-political and economic changes among the Maasai people will be evaluated. Specifically, human dimensions of conservation issues will focus on the Maasai Group Ranches, national parks, wildlife sanctuaries or conservancies especially those in the former Kimana Group Ranch, and the expansive private land parcels along the Kenya-Tanzania border. At the end of the semester, students will use and apply the human dimensions aspects learned in their directed research work which will be guided the Faculty in-charge of the course. The findings will be presented to diverse stakeholders comprising of community members, local leaders, national and Kajiado County government officials.

SFS 3081. Political and Social Dimensions of Conservation. (ENV; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course explores the decision-making apparatus within Chile and Argentina and delves into the complexity of why humans decide to conserve or not; which places/things we choose to conserve or not, what is the cost (in human capital, economic capital, and to ecosystem services) when we choose to conserve or not, and who ultimately are the power brokers of the conservation movement in Patagonia (corporations, government entities, NGOs, foreigners, etc.). And by extension, how do the Chilean conservation management objectives and operations map onto the broader world stage. This is a very transformative time in Chilean conservation management. The ministries are under re-organization; those that hold political influence now may not be the ones in office next year. Many media outlets such as CNN, the New York Times, and The Economist have had recent profiles on the influence of foreign private entities largely shaping the conservation scene in Chile. This course will allow stimulating debate and exploration and send students home with unprecedented insight. While the course will expose students to broad conservation issues that face the entire planet, we will ground these topics in case studies from the diverse locations we visit. Students will learn concepts in conservation both theoretical and practical from lectures and field trips. Throughout the semester,

students will be exposed to a wide range of conservation practices, policies and critiques through discussions, direct observations, and assessments of various conservation initiatives that are being implemented and co-managed by diverse stakeholders including: local government agencies, international governments and investors, private companies, local and international organizations, and researchers. The course will provide students with a background to engage in a nuanced discussion of conservation at multiple scales. Students will gain first-hand information about different conservation challenges and approaches from diverse perspectives such as decision makers; park rangers; educators; and conservation activists who are active in the conservation field in both Chile and Argentina.

SFS 3111. Ecology and Conservation of Southeast Asian Elephants. (4 cr. ; Student Option; Every Fall, Spring & Summer)
This course will focus on the ecology and conservation of the Asian elephant (Elephas maximus). Due to a drastic decrease in wild elephant populations, the reality of a world without these charismatic megafauna is becoming a likely possibility. In Asia this is primarily due to a booming human population and increased demand for space. Elephants are of great scientific interest due to their complex behaviors associated with intelligence and social interactions, forming deep family bonds and displaying empathy by recognizing and responding to another elephant's pain or problem and showing signs of grief after the loss of a family member. Saving the elephants requires improved scientific understanding of the species and the increasingly complex environment that they inhabit.

SFS 3121. African Large Carnivores: Ecology and Conservation. (BIOL,ENV; 4 cr. ; Student Option; Every Summer)
This course will focus on the behavioral ecology and conservation challenges facing large carnivores in Africa using Northern Tanzania as a case study. SFS center for wildlife management studies in Tanzania is an ideal location to explore the ecological and human aspects of large carnivore conservation. The center is located between the Ngorongoro-Serengeti (NSE) and Tarangire-Manyara (TME) ecosystems in northern Tanzania. Both ecosystems have largely intact carnivore guilds that occur within and outside the protected areas. The large carnivores are one of the main attractions to a vibrant photographic tourism industry. In addition, large carnivores attract high premiums among the trophy hunters in the area. Despite the high economic values, carnivores in northern Tanzania are under immense threats from human-related effects such as habitat loss, and conflicts with pastoralists. In order to address these challenges, large carnivores have attracted high interest among conservationists and scientists in Northern Tanzania. African wild dogs, African lions, spotted hyenas, cheetahs and leopards have received high attention due to their charismatic appeal and the manifold threats facing them. Among those species, lions and leopards are among the big five and are highly sought after by tourists. In order to address the conservation threats and better understand the ecology of these large carnivore species in Northern Tanzania, several conservation and research projects have been initiated. These include: The Tarangire Lion Research Project in Tarangire/ Manyara National Parks and the surrounding areas, Kope Lion project in Ngorongoro Conservation Area, and species-specific projects in Serengeti National park focusing on lion, cheetah, spotted hyena and African wild dog.

SFS 3131. Marine Megafauna Ecology and Conservation. (BIOL,ENV; 4 cr. ; Student Option; Every Summer)
In this course, we will explore the ecological importance and conservation status of megafauna that are prominent in the coastal waters of the tropics, namely elasmobranchs (sharks and rays), large oceanic and reef fishes, marine and coastal reptiles (sea turtles, island iguanas), and marine mammals. The course will consist of lectures, workshops and field-based activities that provide students with an understanding of the diversity and ecological characteristics of these animals. Furthermore, the workshops and field activities will introduce students to the practical techniques that are commonly employed to study and assess megafauna. The course will take place on the island of South Caicos, which is at a pivotal time in its development. Until recently, the island?s economy centered around small-scale local fisheries, but a growing tourism industry and recent devastation from Hurricanes Irma and Maria have meant major changes to the community and marine ecosystem. As climate events continue to perturb the marine environment and the economy and the population grow and diversify, so too do the demands on the marine environment. Marine megafauna play important roles in the TCI, both ecologically and economically, making this the perfect place to take a deep dive into their characteristics, threats, and conservation.

SFS 3141. Coffee, Chocolate and Sustainable Development. (ENV,GP; 4 cr. ; Student Option; Every Summer)
Coffee (Coffea arabica, Coffea canephora) and chocolate / cacao (Theobroma cacao) are iconic food crop species in the Tropics. Their emotionally and physically addictive components have led to $98.2 billion in annual sales of chocolate (International Cacao Organization, Statistics, 2016) and coffee exports totaling $30.6 billion (World?s Top Exporters, Coffee, 2016). These tropical crops are intimately intertwined with the natural and political history, culture, and ecology of Costa Rica. This is an interdisciplinary summer program aiming to explore the deeper social and ecological components that intertwine these crops to our lives and the natural and political history of Costa Rica. We consider how the relations between slavery as part of early cacao production, and the transformation of forested lands to coffee plantations owned by elites, intertwine with current questions of cultural representation, agro-tourism, land use strategies, and agricultural certifications. We will conduct site visits to a variety of coffee and cacao farms and producers to learn how various production methods and policies impact the local flora, fauna, and society. Through field research in small groups, we will focus on data collection to conduct an in-depth exploration of the relations between cacao and coffee production and climate change, social justice movements, and species conservation.

SFS 3151. Primate Behavioral Ecology in East Africa. (BIOL,ENV; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course focuses on primate behavioral ecology in southern Kenya focusing on Amboseli Tsavo Ecosystem (ATE). In Africa, there are about 94 species of primates, with Kenya having 19 species. These include some of the world?s most endangered and rare species such as the Tana River red colobus, Tana River mangabey, Percival?s black and white colobus, and de Brazza?s monkeys. Globally and across the continent, most primate populations are declining due to habitat loss, and poaching for bush meat and other products. In most regions of Kenya, habitat loss, habitat fragmentation and human primate conflicts are the major challenge to primate conservation. These effects have been amplified by a continuously increasing human population particularly in the rural areas where there most natural areas for wildlife occur. The increased human population is associated with activities such as agriculture, charcoal burning and conversion of land for human settlement which have led to loss and degradation of primate habitats. The loss of habitat has resulted to fragmentation and reduced populations of primates as critical habitats becoming scarce. Today the scenario is that of isolated populations of primates, with more habitat specific species getting confined mostly to within protected areas. However due to their broad habitat and long ranging movement of a number of primates, areas outside protected areas are still very critical to primate conservation.

SFS 3161. Wet Tropics Watershed Ecology and Conservation. (ENV,GP; 4 cr. ; Student Option; Every Summer)
The Great Barrier Reef and its catchments (watersheds) are an inter-connected system. In this course we will follow a river?s journey from the World Heritage listed rain forest ranges to the Great Barrier Reef as we explore the connections between land and sea. Students will learn about the ecological processes and socio-economic factors that shape rain forest, watershed, and reef management in Queensland?s tropical north, and the factors needed to maintain healthy ecosystems in the face of climate change, development and increasing urbanization.

SFS 3181. Himalayan Forests & Gross National Happiness. (ENV; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Bhutan is internationally famous for its development concept of Gross National Happiness (GNH). GNH, which has its underpinnings in the Buddhist philosophy of

the Middle Path, is the guiding principle of development in Bhutan, and is understood to have four pillars: good governance, cultural protection and preservation, sustainable development, and environmental conservation. GNH and a leadership committed to conservation has led to Bhutan having more than 70% forest cover and about 50% of its land area under formal protection. Bhutan?s forests which fall within the eastern Himalayan region is characterized by extensive and numerous mountains and valleys, hosting some of the world?s highest peaks and a diversity of vegetation and wildlife. Bhutan?s natural landscapes host an estimated 770 species of birds and other diverse fauna, including the takin, snow leopard, golden langur, blue sheep, and tiger. Ecosystems range from subtropical broadleaf forests in the south, to subalpine conifer forests, alpine shrub, and high-mountain meadows. The highest elevations comprise rock and ice. These forests and natural landscapes are integral to Bhutan?s development, and key to ensuring food, water and energy security. Over four weeks, students will learn about the interplay between GNH, resource use and development. Through travel to various parts of the country, students will be exposed to the culture and history, religious traditions, environmental issues, and conservation policies. Students will stay in Bhutanese villages and trek across Himalayan landscapes to experience and understand rural livelihoods and their connection to the natural environment. Academically, students will develop skills in assessing environmental problems, designing socio-economic surveys, conducting resource assessments, and communicating results. Students will be guided to appreciate the complexities and challenges involved in meeting development goals while simultaneously ensuring the adequate conservation of natural resources in a rapidly changing region. SFS partners with the Ugyen Wangchuck Institute for Conservation and Environment Research (UWICER), an international research and training facility in Bumthang, Bhutan and the Bhutan Ecological Society (BES), a Civil Society Organization promoting environmental sustainability in Bhutan. SFS students and faculty will collaborate with UWICER and BES to advance its research agenda in several priority areas, including forest management, community resource assessment, and development policy.

SFS 3191. Tracking and Conservation of Big Cats in the Himalayas. (ENV; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Within the Eastern Himalayas, Bhutan is increasingly seen as the last biodiversity refugia. In particular, Bhutan is home to 10 wild cat species, with the Snow Leopard, Tiger and the Clouded Leopard being the most charismatic big cat species. With 70% of its land under forests, and over 50% conserved under a well networked protected area system, these wild cats and associated species continue to thrive in Bhutan. A deep spiritual and cultural reverence for life and nature has aided in the persistence of biodiversity. However, climate change and human-wildlife conflicts continue to pose serious threats to the long term health of Bhutan?s landscapes and species therein. Tracking the status of important keystone species, such as Tigers and Snow Leopards, and understanding threats and opportunities will be crucial in helping to adequately mitigate threats and implement effective adaptation strategies to ensure the long term survival of species in the wild. The summer course on Tracking and Conservation of Big Cats in the Himalayas will focus on understanding key issues and challenges associated with conservation of wild cats and associated species. Students will be introduced to the socio-political and cultural significance of Himalayan landscapes and biodiversity, with a special focus on charismatic species such as the Tigers and Snow Leopards. Interactions with stakeholders from the Government, academia, local people and civil society will allow students to understand environmental governance frameworks and better appreciate on-the-ground conservation challenges associated with climate change, human-wildlife conflicts, and limited financing and capacity. The four-week course will be a mix of classroom lectures and field trips to different parts of Bhutan. Traveling through Bhutan, students will learn about conservation challenges, culture and history, religious traditions, and environmental issues. Students will stay in Bhutanese villages and trek across Himalayan landscapes to experience and understand rural livelihoods and their connection to the natural environment. Academically, students will develop skills in assessing environmental problems, designing socio-economic surveys, conducting resource assessments, and communicating results. Students will learn camera trapping techniques and associated data analysis skills to estimate population sizes and map species distribution ranges in a GIS. Students will also be introduced to radio-telemetry and estimation of home ranges. Throughout the course, students will be guided to appreciate the complexities and challenges involved in effective conservation of wildlife. SFS partners with the Ugyen Wangchuck Institute for Conservation and Environment Research (UWICER), an international research and training facility in Bumthang, Bhutan, and the Bhutan Ecological Society (BES), a Civil Society Organization promoting environmental sustainability in Bhutan. SFS students and faculty will collaborate with UWICER and BES to advance its research agenda in several priority areas, including conservation, forest management, community resource assessment, and development policy.

SFS 3500. Wildlife Management and Conservation. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3510. Marine Protected Areas: Management Techniques and Policies. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3520. Sustaining Tropical Ecosystems: Biodiversity, Conservation, and Development. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3530. Tropical Marine Ecosystems: Monitoring and Management. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SFS 3540. Rainforest Management Studies in Australia and New Zealand. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3550. Techniques for Rainforest Research in Australia. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3560. Applied Marine Research Techniques. (4 cr. [max 8 cr.] ; Student Option; Every Spring & Summer)
Study abroad course

SFS 3570. Techniques for Wildlife Field Research. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3580. Himalayan Forests, Watersheds, and Rural Livelihoods. (6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3601. Earth Systems and Climate Science. (ENV,PHYS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course focuses on the physical nature of landscapes and the geologic and seismic complexity of a region firmly situated along the ?ring of fire,? the edge of the Pacific Ocean basin where tectonic activity generates earthquakes and volcanic activity. On a planet whose surface is more than 70% ocean, we will also explore the important role of the oceans in the Earth Systems. We will study the science of climate past and current and the evidence for anthropogenic climate change. As we build our understanding of how the globe functions, we will consistently ground our learning with our location in Patagonia. From the base of Puerto Natales, many national parks are only kilometers away. Glaciers that belong to the Southern Patagonian Ice Field, the world?s second largest contiguous ice field outside the polar regions, will be visited. Chile?s dynamic Andes range ? which is still growing ? and the active volcanoes of the lakes region of Chile are open to discovery. Fragile forests susceptible to wildfire will be examined. One focus of this course will be the science of climate change, understanding the dynamics of the Quaternary Period (the time when periodic pulses of warm and cold influenced most earth systems; e.g., the ice ages) and the Anthropocene (the period where humans have begun to dominant earth systems). The Chilean Patagonia region, like other high-latitude regions, is hyper-susceptible to changes in climate, and the Southern Patagonian icefield is shown to be more vulnerable to climate change than other glaciers. Unpredictable rain- and snow-fall, glacial melt, temperature shifts, fires and droughts can wreak havoc

on slow-growing plant ecosystems. Climatic shifts have effect on the trophic webs, freshwater catchments, and farming and ranching operations. Understanding the geosphere, biosphere, the cryosphere (the frozen environment) and their interactions, we will weave the study of human action and impact throughout Earth Systems: our food systems, energy systems, and the nexus of water/energy/agriculture and climate. Chile is where climate change can be observed and measured in palpable ways.

SFS 3690. Rainforest Ecology. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3700. Principles of Forest Management. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3710. Techniques in Wildlife Management. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3720. Wildlife Ecology. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3730. Tropical Marine Ecology. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3740. Principles of Resource Management. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3751. Techniques in Natural Resource Management. (ENV; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course involves students learning about principles and techniques of natural resource management. The course will introduce the ongoing discourse and the underlying scientific principles on natural resource management as well explain the current techniques being applied in managing natural resources.
The course will in particular emphasis on water resources as a core resource for humans and wildlife. In order to enhance a broad understanding of natural resource management, the course will be taught through a juxtaposition of field based experiential learning through hands on activities and interactions with expert persons. The training emphasizes self-learning with guidance from a resident faculty. Student learning activities will be centered within the socially and ecologically unique environment within Amboseli-Tsavo Ecosystem (ATE) of southern Kenya and in the Tarangire- Manyara Ecosytem (TME), Ngorongo-Serengeti ecosystem (NSE) of northern Tanzania. The broad objective of the course is to expose students to the realm of biodiversity conservation in East Africa in context of the status, management strategies and the challenges. This will be achieved through a case study approach in ATE, TME and NSE. While much of the learning will be done in Kenya, Tanzania offers a chance for comparison of management policies and approaches in two countries. This course is designed to offer students knowledge on; natural resource assessments, monitoring, planning and management, and strategies for sustainable natural resource management. The mode of field learning will include classes at base camp, field exercises and self or guided lab sections.

SFS 3770. Tropical Ecology and Sustainable Development. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3781. Patagonian Ecology. (ENV; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course focuses on ecology as a discipline, biodiversity, and the Patagonian ecoregions and habitats that have evolved with short growing seasons, tenacious southwesterly winds, and fierce winters. We will examine the ecology and evolution of faunal species such as Guanaco (related to the llama), Magellanic and King penguins, and the flightless Rhea, most of them endemic to the region, and the largest animal of them all, the Blue Whale. We will explore ecological succession, including primary succession, which is how life recruits into new environments, such as bare rock after glacial retreat, or new, igneous rock after volcanic eruption. Though flora is not particularly diverse here in southern Patagonia (save for the lichens and bryophytes), the floral structural complexity is fascinating. We will explore a remarkable latitudinal gradient?from Cape Horn in the south to Chilo? Island?s milder, temperate climate?a latitudinal change equivalent to traveling from Massachusetts to Florida. Thematically, we will traverse alpine ecology, exposed terrestrial ecology, coastal ecology, marine ecology, and fire ecology. From the central focus on the theory and practice of ecology, we will expand to investigate relationships between people and nature in conservation, resilience, and environmental challenges. We will explore the role of protected areas in conservation, including private protected areas that have emerged in Chile; invasive species; human history on landscapes; agriculture, plantation forests, and aquaculture; and current and predicted changes due to climate change. The course is constructed so that the lens of climate shifts and perturbations will be central to discussions and observations; it will encompass not only climate threats, but an understanding of the role of nature in climate adaptation and mitigation, and the role of Chilean climate policy and commitments in an international community.

SFS 3790. Tropical Coastal Ecology. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3800. Conservation Science and Practice. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3810. Ecosystems and Livelihoods. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3820. Environmental Ethics and Development. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3831. Tropical Ecology of the Amazon. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
The term biodiversity refers to the variety of life on Earth at all its levels, from genes to ecosystems. Ecology is the scientific study of interactions of organisms with one another and with the physical and chemical environment around them. In this course Tropical Ecology of the Amazon we will be looking at the biodiversity of the region and the processes that originate and sustain it at multiple scales: regional, landscape, ecosystem, habitat, communities, and species. The overarching goal of this course is for students to be able to identify and characterize the diversity of non-human life in the Amazon region, and to understand the patterns and processes that support this diversity. Students will learn the fundamental principles of ecology through studying a diverse mosaic of ecosystems, habitats, and species along elevation gradients, succession gradients, and geomorphic features.

SFS 3840. Political Ecology of Developing Landscapes: Peru. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 3911. Fundamentals of Environmental Inquiry. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Research takes many forms. Though the SFS model emphasizes field-based methodologies, there is much to be learned in those aspects of research that lie beyond the fieldwork: building a robust question, vetting sources of information to produce a high-quality literature review, placing novel inquiry within a theoretical and empirical context and analyzing existing data to create a strong discussion of the research question. The aim of this course is to provide students the opportunity to explore existing Center resources and develop methods of inquiry to analyze environmental issues relevant to the communities in which we operate. We will investigate the ways that various methods and theories distinguish (or not) fact from interpretation, cause from correlation, and advocacy from objectivity. Through their research projects, students will contribute to a growing body of scientific research that informs local conservation and resource management decisions near SFS Centers around the world. Each student will be led by a faculty advisor that will produce research questions and methods, analyze data, and communicate results in one or across several of the following disciplines: ecology, conservation, earth sciences, natural resource management, anthropology, human geography, and environmental policy. All FEI projects are collaborative in process, but individual in outputs. Depending on the project, students may work together on the development and analysis of questions,

but individual students must submit final assignments independently. The course is designed to build on the information students have learned in their disciplinary courses at each Center. In addition, faculty will provide lectures and workshops specifically designed to assist students in understanding the scientific process and presenting results in both written, spoken, and visual formats.

SFS 4910W. Directed Research. (WI; 4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SFS 4930. Applied Research Techniques and Strategies Toward Sustainability in Costa Rica. (4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

Senegal (SNGL)

SNGL 1001. Beginning French I. (4-5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 1002. Beginning French II. (4-5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 1003. Intermediate French I. (4-5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 1004. Intermediate French II. (4-5 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 1101. Beginning Wolof. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3001. Senegal: Culture and Society. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3002. Entrepreneurship & Marketplace. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3015. Advanced French I. (3-4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3016. Advanced French II. (3-4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3101. Intermediate Wolof. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3102. Advanced Wolof. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SNGL 3201. Advanced Language Through Current Events. (4 cr. ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SNGL 3202. Reading and Writing through Current Events. (4 cr. ; Student Option; Every Fall, Spring & Summer)
This course is a continuation of SNGL 3201, Advanced Language through Current Events. Students examine contemporary issues in Senegal through the lens of Senegalese newspapers, journals, films, radio, and TV broadcasts.

Social Work (SW)

SW 1001. Introduction to the World of Social Work: A Global Perspective. (; 3 cr. ; Student Option; Every Spring)
Varied dimensions of social work, locally, nationally, and internationally. Origins/ emergence of social work as a profession. Effects of worldwide economic/social oppression. Human behavior and the social environment. Child/adult social welfare theories. Policies, programs. Health and mental health. Care at end of life cycle.

SW 1501. Introduction to Peace Studies. (GP; 3 cr. ; A-F only; Every Fall & Spring)
Interdisciplinary field that considers questions such as how human conflicts can be resolved in ways that promote justice/peace. Definitions, conditions, and causes of violence, nonviolence, war, and peace between nations, groups, or individuals.

SW 2501W. Introduction to Social Justice. (WI,DSJ; 4 cr. ; A-F only; Every Fall & Spring)
Meanings of social justice. Ways in which social justice advocates work for social change. Criminal justice, globalization, and social welfare. Students do service learning in a social justice organization.

SW 3501. Theories and Practices of Social Change Organizing. (; 4 cr. ; A-F only; Every Fall & Spring)
Concepts, theories, and practices of social change organizing. U.S. power relations. How people organize. Cross-class, multi-racial, and multi-issue organizing. Students do service learning in social justice organization.

SW 3601. Solidarity & Community-led Transformation in South Africa. (CIV,GP; 3 cr. ; A-F only; Every Spring)
Though the magnificence of South Africa's people and landscapes is vast, it is often said that visitors ignore the view by overlooking the juxtaposition between acute poverty in the townships and immensely affluent neighborhoods (built for-and-by the white minority during Apartheid). Mindful visitors often put into question the free market and recognize that Apartheid's history of racism and classism still exists in all fabrics of life; and, many westerners try to assist through service or volunteerism without fostering real change. In Africa, service is a billion-dollar industry. Abuse by western volunteer organizations and other programs has included half-finished work, time and resources drained from communities, and unchanged volunteers. But, do we do nothing? In this course, we will explore the dynamics of power, privilege, and repression through social justice advocacy and scholarly analysis of the oppressive savior complex.

SW 3701. Introduction to Child Maltreatment: Intervention and Prevention. (; 3 cr. ; Student Option; Every Fall & Spring)
Child abuse/neglect as form of family violence. Prevalence, scope, dynamics, responses, and prevention strategies. Individual, familial, and community analyses using ecological perspective and risk/resilience framework.

SW 3702. Introduction to Adult Intimate Partner Violence: Intervention and Prevention. (; 3 cr. ; Student Option; Every Fall & Spring)
Theories, research, intervention, and prevention strategies regarding violence against women and the abuse of vulnerable adults in the United States. Issues of gender, race, culture, age, physical ability, SES, and sexual orientation. Includes service learning.

SW 3703. Gender Violence in Global Perspective. (; 3 cr. ; Student Option; Every Fall & Spring)
Theories/research on violence in intimate domestic relationships examined through multiple lenses. Overview of interventions in Minnesota, United States, and other societies.

SW 4501. Senior Seminar in Social Justice. (; 4 cr. ; A-F only; Every Spring)
Capstone course. Students complete a social justice portfolio, do service learning in a social justice organization. prereq: 2501, 3501

SW 4693. Directed Studies. (; 1-10 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study related to social issues, social work methods, or social work history. prereq: instr consent

SW 4694. Directed Research. (; 1-10 cr. ; Student Option; Every Fall, Spring & Summer)
Guided research related to social issues, social work methods, or social work history. prereq: instr consent

SW 5051. Human Behavior and the Social Environment. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Social, psychological, biological, and cultural factors of individual and group development as applied to social work practice. Behavior and life-cycle development focusing on diversity and each stage of life. Discuss development in terms of the individual, and in terms of overlapping social systems such as the multi-generational family, culture, community, and society.

SW 5101. Historical Origins and Contemporary Policies in Social Welfare. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Contemporary policies and programs in social welfare are examined in light of their historical origins and evolution. A framework is then developed for analysis of concepts and principles in contemporary social policy for social welfare programs and services. The emergence of the profession of social work also examined.

SW 5562. Global Social Work and Social Development. (3 cr. ; Student Option; Periodic Fall & Spring)
Theories/strategies of social work and social development in industrial/developing countries. Applying international perspective and comparative framework to analyze basic human needs, social problems, and social work and social development strategies in different countries.

SW 5810. Seminar: Special Topics. (; 1-4 cr. [max 10 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

SW 5903. Substance Abuse and Social Work. (; 2 cr. ; Student Option; Every Fall & Spring)
Students gain skills in eliminating the detrimental impact of substance use disorders at multiple levels (families, groups, organizations, and communities) through an ability to identify, assess, intervene, and evaluate those struggling with substance abuse and dependency throughout the life span. prereq: Grad student or dept consent

SW 5904. Facilitation and Conflict Management: Humanistic Approach. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Humanistic approach to facilitating meetings in small human service organizations and units within large bureaucratic structures. Managing conflict among individuals, groups, and communities in multiple settings.

SW 5905. Permanency in Child Welfare. (; 2 cr. ; A-F or Audit; Every Spring)
Depth/breadth in knowledge/skill acquisition in achieving permanency for children receiving services within public, tribal, and private child welfare systems. Out-of-home/permanency placements, specific permanency interventions, and child/family responses to different permanency options. prereq: Grad student or dept consent

SW 5906. Advanced Ethical Decision Making. (; 1 cr. ; Student Option; Every Fall)
Identify ethical issues, resolve ethical dilemmas, make ethical decisions when confronted with conflicting duties/choices that occur within the context of professional social work at all levels of practice.

SW 5907. School Social Work. (; 1 cr. ; Student Option; Periodic Fall, Spring & Summer)
Apply social work knowledge/skills in school settings through prevention, assessment, intervention, and evaluation from an ecological multilevel approach focused on students, families, and the school community.

SW 5909. Social Work With Involuntary Clients. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Includes theory, ethics, effectiveness, and intervention methods for work with client systems that experience involuntary contact with a social worker. Interventions at micro, mezzo, and macro levels are included. Practice in varied settings such as child welfare, mental health, corrections, and public schools as well as practice related to organizational responses to change.

SW 5912. Grief and Loss in Social Work Practice. (1 cr. ; Student Option; Every Fall & Spring)
Review current concepts of grief/loss. Historical/modern views, symptoms of grief, implications of diverse losses, including expected, sudden, or traumatic losses, ambiguous grief.

SW 5913. Working with Immigrant Populations. (; 2 cr. ; Student Option; Periodic Fall & Spring)
Trends in immigration to US and public policy responses. Acculturation processes, issues, problems. Common social service needs of immigrants/refugees. Skills for engagement/ interventions with immigrants and refugees across main fields of social work.

SW 5991. Independent Study in Social Work. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Independent study in areas of special interest to students and faculty. This course is open to graduate students in the School of Social Work with an approved independent study proposal. MSW students may apply a maximum of 4 credits of SW 5991 to their program of study.

Social/Administrative Pharmacy (SAPH)

SAPH 5100. Pro-Seminar. (; 1 cr. ; A-F or Audit; Every Fall)
History, foundational frameworks, and key research domains for social and administrative pharmacy through examining landmark literature. Students think critically, reflect on important works, and create a cognitive map of the discipline and their own focus for study.

SAPH 5610. Pharmacoepidemiology. (3 cr. ; A-F only; Fall Odd Year)
Application of epidemiologic principles to study/ use. Beneficial/adverse outcomes of drugs in human populations.

Sociology (SOC)

SOC 1001. Introduction to Sociology. (DSJ,SOCS; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed to introduce you to the study of society and what sociologists call the "sociological imagination:" a way of viewing the events, relationships and social phenomena that shape our individual lives and much of our collective experience. Through the course we will examine some of the central concepts and problems that have preoccupied both classical and contemporary sociologists and gain a sense of how the sociological imagination can illuminate the social forces that have a concrete impact on our everyday lives. Throughout the course you will be asked to consider the ways in which society affects your life, and how you, in turn, affect society. prereq: Soc Majors/ Minors must register A-F

SOC 1011V. Honors: Introduction to Sociology. (DSJ,WI,SOCS; 4 cr. ; A-F only; Every Fall & Spring)
This course is designed to introduce you to the study of society and what sociologists call the "sociological imagination:" a way of viewing the events, relationships, and social phenomena that shape our individual lives and much of our collective experience. Through the course we will examine some of the central concepts and problems that have preoccupied both classical and contemporary sociologists and gain a sense of how the sociological imagination can illuminate the social forces that have a concrete impact on our everyday lives. Throughout the course you will be asked to consider the ways in which society affects your life and how you, in turn, affect society.

SOC 1101. Law, Crime, & Punishment. (3 cr. ; A-F or Audit; Every Spring)
Introductory course designed to provide students with a general understanding of the main theoretical perspectives and empirical findings that dominate socio-legal studies and contemporary criminology. We examine the connections and relationships between law, crime, and punishment using an interdisciplinary social science approach.

SOC 3003. Social Problems. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
In this course, we will engage in a sociological examination of major social problems facing the contemporary US and abroad. We explore the origins and causes of different social problems, seek to understand how they impact individuals, groups, and the society as a whole, and evaluate solutions. We ask how an issue becomes defined as a "social problem," discuss the social construction of reality and deviance, and consider the primary frameworks under which societies have organized their responses to different social problems. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3090. Topics in Sociology. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Spring)
Topics specified in Class Schedule. prereq: 1001 recommended; soc majors must register A-F; cr will not be granted if cr has been received for the same topics title

SOC 3093. Directed Study. (1-4 cr. ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study at sophomore level. Prereq 1001, instr consent, dept consent, college consent; soc majors/ minors must register A-F.

SOC 3094. Directed Research. (; 1-4 cr. ; Student Option; Every Fall & Spring)
Guided research experience at sophomore level. prereq: 1001, instr consent; soc majors/ minors must register A-F

SOC 3101. Sociological Perspectives on the Criminal Justice System. (CIV; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
This course introduces students to a sociological account of the U.S. criminal justice system. We will critically examine the components, dynamics, and effects of policing, criminal courts, community supervision, jails, and prisons. Throughout the course, we focus on sociological understandings of these processes, with particular attention to ethnic, racial, class, and gender inequalities as well as long-term problems associated with the high rate of criminal justice supervision in the U.S. prereq: [SOC 1001] recommended, Sociology majors/minors must register A-F

SOC 3101H. Honors: Sociological Perspectives on the Criminal Justice System. (CIV; 3 cr. ; A-F only; Every Fall, Spring & Summer)

This course introduces students to a sociological account of the U.S. criminal justice system. We will critically examine the components, dynamics, and effects of policing, criminal courts, community supervision, jails, and prisons. Throughout the course, we focus on sociological understandings of these processes, with particular attention to ethnic, racial, class, and gender inequalities as well as long-term problems associated with the high rate of criminal justice supervision in the U.S. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: ? Honor students will be expected to interview a current Sociology graduate student working on a LCD topic. Following this, each student will individually be expected to do an in-class power-point presentation explaining how the interviewees? research relates with themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. prereq: [SOC 1001] recommended, Sociology majors/minors must register A-F, honors

SOC 3102. Criminal Behavior and Social Control. (3 cr. ; Student Option; Every Fall & Spring)
This course will address the social and legal origins of crime and crime control with a focus on general theories of deviance/crime and present an overview of forms of social control. We will critically examine criminological, sociological and legal theories that explain the causes of crime and other misdeeds. prereq: Soc majors/minors must register A-F

SOC 3201. Inequality: Introduction to Stratification. (; 3 cr. ; Student Option; Periodic Fall)
Why does inequality exist? How does it work? These are the essential questions examined in this class. Topics range from welfare and poverty to the role of race and gender in getting ahead. We will pay particular attention to social inequities ? why some people live longer and happier lives while others are burdened by worry, poverty, and ill health. prereq: soc majors/minors must register A-F

SOC 3207. Global Islamophobia. (3 cr. ; A-F only; Periodic Fall & Spring)
"We don't want Muslims in our country." "All Muslims should leave." "Muslims are terrorists." Throughout the world, anti-Muslim activists and politicians have been increasingly attacking Muslims and Islam. And, international organizations have reported human rights violations against Muslims worldwide. Recently, in the United States, there have been calls to ban Muslims, as well as register American Muslims. In France, Muslim women are prohibited to wear a headscarf in high school. And in Myanmar, a genocide against Muslim minorities is currently underway. While anti-Islamic discourses have a long history in many societies worldwide (including Muslim-majority countries), the course seeks to explore the global rise of these discourses since September 11, 2001. The course examines the cultural, political, and historical origins of Islamophobic discourses that cast Muslims as "violent," "hateful," and "uncivilized." Class sessions will include some lecture but will be largely discussion based. Assignments will ask students to think and write critically about course concepts, debate and participate in simulation exercises, and reflect on personal thoughts and feelings about course content.

SOC 3211W. Race and Racism in the US. (DSJ,WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
We live in a society steeped in racial understandings that are often invisible?some that are hard to see, and others that we work hard not to see. This course will focus on race relations in today's society with a historical overview of the experiences of various racial and ethnic groups in order to help explain their present-day social status. This course is designed to help students begin to develop their own informed perspectives on American racial ?problems? by introducing them to the ways that sociologists deal with race, ethnicity, race relations and racism. We will expand our understanding of racial and ethnic dynamics by exploring the experiences of specific groups in the U.S. and how race/ethnicity intersects with sources of stratification such as class, nationality, and gender. The course will conclude by re-considering ideas about assimilation, pluralism, and multiculturalism. Throughout, our goal will be to consider race both as a source of identity and social differentiation as well as a system of privilege, power, and inequality affecting everyone in the society albeit in different ways.

SOC 3215. Supercapitalism: Labor, Consumption & the Environment in the New Global Economy. (3 cr. ; A-F only; Every Spring)
Far-reaching transformations of the global economy over the last seventy years in the realms of labor, consumption and the environment. The movement away from regulated national economies to a more fully integrated global economy; changing patterns and organization of production, employment, consumption, and waste disposal; rise of supercapitalism: a new culture of market rule over society and nature.

SOC 3221. Sociology of Gender. (; 3 cr. ; A-F or Audit; Periodic Spring)
Gender is something so fundamental to our lives, to our identities, and how we interact with others that we often take it for granted. However, understandings of gender vary across time and place, and even within cultures, making it clear that our understandings of gender are not universal or timeless. In this class, we will examine how gender intersects with race and sexuality, as well as how it impacts areas of our lives such as child socialization, family structure, the media, intimate relationships, and the workplace prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3241. Sociology of Women's Health: Experiences from Around the World. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Health care is a fundamental right, but access to it is not shared evenly by all. This course considers women's and men's health needs, and how health systems assign priority to those needs. The course also covers how differences in health policy, national medical systems, levels of wealth, and cultural contexts around the world affect women's health and treatment and their experiences of wellness and illness. Women are taking an active role in shaping healthy societies. The final portion of this course looks at the goals and successes of women's movements in the health sphere. Throughout the course, there will be an emphasis on how sociological approaches to health differ from medical or epidemiological approaches, the advantages of the sociological approaches, and the respective advantages and disadvantages of qualitative versus quantitative approaches to studying women's health. Pre-req: Soc majors and minors must register A-F; Soc 1001 recommended.

SOC 3246. Diseases, Disasters, & Other Killers. (ENV,HIS; 3 cr. ; A-F or Audit; Every Fall)
This course studies the social pattern of mortality, beginning with demographic transition theory. Students will study specific causes of death or theories of etiology, including theories about suicide, fundamental cause theory, and the role of early life conditions in mortality. Students learn tools for studying mortality, including cause of death classifications and life tables. Soc majors/ minors must register A-F.

SOC 3251W. Sociological Perspectives on Race, Class, and Gender. (DSJ,WI,SOCS; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
In the midst of social unrest, it is important for us to understand social inequality. In this course we will analyze the impact of three major forms of inequality in the United States: race, class, and gender. Through taking an intersectional approach at these topics, we will examine the ways these social forces work institutionally, conceptually, and in terms of our everyday realities. We will focus on these inequalities as intertwined and deeply embedded in the history of the country. Along with race, class, and gender we will focus on other axes of inequality including sexuality, citizenship, and dis/ability. We will analyze the meanings and values attached to these social categories, and the ways in which these social constructions help rationalize, justify, and reproduce social inequality. prereq: Soc majors/minors must register A-F

SOC 3301W. Politics and Society. (WI; 3 cr. ; A-F or Audit; Periodic Spring)
Political sociology is concerned with the social bases of power and the social consequences

of the organization of power, especially how power operates in relationship to various forms of inequality and different institutions. We will explore political socialization, electoral politics and voting, social movements, the media and framing, and politics of inequality, poverty, and welfare. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3309. Atheists & Others: Religious Outsiders in the United States. (DSJ; 3 cr. ; A-F only; Periodic Spring)
What does it mean to be an atheist in the United States today? Atheists comprise a small percentage of the American population, but one with an increasingly visible presence in popular culture, political discourse, & everyday life. How do atheists organize into groups oriented toward identity-formation, social connection, and political action? prereq: 1001 recommended

SOC 3311W. Hard Times & Bad Behavior: Homelessness & Marginality in the United States. (WI; 3 cr. ; Student Option; Periodic Spring)
As we read about hobos and sailors, opium users and saloon girls, and contemporary experiences on the streets, we trace themes about marginality in the US, such as rootlessness produced by labor market, the love-hate relationship between elites and marginal populations in popular culture, and the complex mixture of freedom and deprivation of people on the edge. prereq: 1001 recommended, soc majors/minors must register A-F

SOC 3322W. Social Movements, Protests, and Change. (CIV,WI; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Focusing on the origins, dynamics, and consequences of social movements, this course explores debates about the dilemmas and challenges facing movement organizations, the relationship between social movements and various institutions, and the role of social movements and protest in bringing about change. The course is organized around general theoretical issues concerning why people join movements, why they leave or remain in movements, how movements are organized, the strategies and tactics they use, and their long-term and short-run impact. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3411W. Organizations and Society. (WI; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course introduces undergraduates to contemporary theories and debates about formal organizations in an international context, including such forms as large corporations, small businesses, public bureaucracies, nonprofits, voluntary associations, social movement organizations, terrorist networks and counterterror organizations. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3412. Social Networking: Theories and Methods. (TS; 3 cr. ; A-F only; Periodic Spring)
Network analysis spans a diverse range of phenomena from ego-centric ties, to small work-team sociograms, to organizational relations, to trade and military alliances among nation states. This course introduces undergraduate students to theories and methods for studying social networks, the ties connecting people, groups, and organizations. Topics include friendship, communication, small group, health, sexual and romantic, corporate, social movement, public policy, innovation diffusion, criminal and terrorist, and Internet networks.' prereq: [SOC 1001] recommended, Sociology majors/minors must register A-F

SOC 3412H. Honors: Social Networking: Theories and Methods. (TS; 3 cr. ; A-F only; Periodic Spring)
Network analysis spans a diverse range of phenomena from ego-centric ties, to small work-team sociograms, to organizational relations, to trade and military alliances among nation states. This course introduces undergraduate students to theories and methods for studying social networks, the ties connecting people, groups, and organizations. Topics include friendship, communication, small group, health, sexual and romantic, corporate, social movement, public policy, innovation diffusion, criminal and terrorist, and Internet networks. Honors students are expected to demonstrate greater depth of discussion, depth and to a degree length of writing assignments, presentations, and leadership of the students. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. ? Interview a current Sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor. prereq: [SOC 1001] recommended, Sociology majors/minors must register A-F, honors

SOC 3415. Consume This! The Sociology and Politics of Consumption. (; 3 cr. ; A-F or Audit; Periodic Fall)
How symbols are created, acquired, diffused, and used for organizing personal identity and maintaining group boundaries. Fashion. Socialization. Structure of retail trade. Role of mass media, advertising, marketing/production strategies. Implications of worldwide markets. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3417W. Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization. (GP,WI; 3 cr. ; A-F or Audit; Periodic Fall)
This course will introduce students to some of the world's most powerful global institutions -- such as the World Bank (IBRD), the International Monetary Fund (IMF), the World Trade Organization (WTO), the United Nations, and affiliated agencies such as UNHCR (for refugee support). We will follow their efforts to promote a style of global development practices -- large-scale capital lending and global expertise building -- that has crystallized into a common understanding of how global north-south dynamics should progress. Cases pursued in class may include their lending and debt policies, dam building and energy projects, climate resilience and water loans, and the ways they mediate free trade agreements among competing countries. We will also hear from the multitude of voices, theories, and practices that offer alternative visions as to how people strive to produce a more just, socially equitable, and climate-safe world. We will use books, articles, films, in-class debates, case study exploration, small-group projects, and guest speakers to create a lively discussion-based classroom environment.

SOC 3421W. Sociology of Work: Good Jobs, Bad Jobs, No Jobs?. (WI; 3 cr. ; A-F or Audit; Periodic Spring)
Work is central to individuals, economy, and society. This course introduces students to sociological perspectives and analyses of work. We will look at what makes a good job good, a bad job bad, and impacts of joblessness on society. prereq: 1001 recommended, Soc majors/minors must register A-F

SOC 3446. Comparing Healthcare Systems. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Examination of national health systems from an international comparative perspective, emphasizing social, organizational, political, economic, cultural, and ethical dimensions of healthcare policies and programs to deliver services and their impacts on the health of population groups. The comparative approach will enable students to acquire a better understanding of the problems and potential for reforming and improving US healthcare delivery. Pre-req: Soc majors/minors must register A-F

SOC 3451W. Cities & Social Change. (WI; 3 cr. ; A-F or Audit; Spring Odd Year)
The core themes of this class will provide an essential toolkit for approaching broad questions about social justice, culture, work, housing and service provision on multiple levels and across the globe. This course will have units on economic development, inequality, the interaction between design and human action, inclusive and exclusive cultural formations, crime and cultures of fear, social control and surveillance. prereq: 1001 recommended, Soc majors/minors must register A-F

SOC 3452. Education and Society. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Everyone thinks they know what "education" is. We've all been in schools, and we think we know how they work. We all have opinions about why some people go farther in school

than others and why some people learn more than others. We all think we know what role education plays in shaping who gets good jobs, who has a good life, and who has more knowledge. This course is designed to challenge and expand what we think we know about all of these things. Students (and instructor) will critically engage scientific research in sociology, education, economics, public policy, and elsewhere. The goal will be to educate everyone about the current state of knowledge about how "education" works: what shapes educational achievement; where sex and racial/ethnic and socioeconomic inequalities in educational achievements come from; what role education plays in economic development; how and why educational accomplishments result in better social and economic outcomes; and how educational institutions might be improved. prereq: Soc majors/minors must register A-F.

SOC 3501. Sociology of Families. (DSJ,SOCS; 3 cr. ; Student Option; Fall Odd, Spring Even Year)
Family has long been a significant experience in human societies; much of what we understand ourselves to be, arises in family life. But family also varies widely in composition across time and place. We will learn how sociologists study and understand families theoretically, as social institutions, as well as sites and sources of social problems. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3503. Asian American Identities, Families & Communities. (SOCS,DSJ; 3 cr. ; A-F or Audit; Periodic Spring)
This course provides a sociological overview of Asian American identities, families and communities. To place these experiences within a broader historical, structural, and cultural context the course will begin with a brief introduction to the history of Asians and Asian Americans in the United States and sociological theories about incorporation and racial stratification. We will then examine the diversity of Asian American communities and families, highlighting ethnic, gender, and class variations. Other topics of focus include racialization and discrimination, education, ethnic enclaves, family and intergenerational relationships, identity, media, culture, and politics and social action. Throughout the course we will consider the ways in which society affects individuals, and how in turn, individuals affect society. Students will have an option to do community-engaged learning or another course project. prereq: SOC 1001 recommended, Sociology majors/minors must register A/F

SOC 3503H. Honors: Asian American Identities, Families & Communities. (SOCS,DSJ; 3 cr. ; A-F only; Periodic Spring)
This course provides a sociological overview of Asian American identities, families, and communities. To place these experiences within a broader historical, structural, and cultural context the course will begin with a brief introduction to the history of Asians and Asian Americans in the United States and sociological theories about incorporation and racial stratification. We will then examine the diversity of Asian American communities and families, highlighting ethnic, gender, and class variations. Other topics of focus include racialization and discrimination, education, ethnic enclaves, family and intergenerational relationships, identity, media, culture, and politics and social action. Throughout the course, we will consider the ways in which society affects individuals, and how in turn, individuals affect society. Students will have an option to do community-engaged learning or another course project. Honors students are expected to demonstrate a greater depth of discussion, depth and to a degree length of writing assignments, presentations, and leadership of the students. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: - Sign up and prepare 3-4 discussion questions in advance of at least one class session. - Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). - Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading - Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. - Interview a current Sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor. prereq: [SOC 1001] recommended, honors

SOC 3505. Migrations: People in Motion. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Students in this course will tackle debates related to migration from a variety of disciplinary perspectives and will compare and connect diverse migration trends around the world (Asia, Africa, Latin America, and North America). Students will critically engage with various paradigms on the geopolitical, racial, and gender power dynamics that anchor migration processes and outcomes. Why would the movement of individuals from some parts of the world (often from the least developed regions to the highly developed Western nations) create such strong and highly charged debates? How are cross border social and economic relations of individuals and households maintained and perpetuated? What are particular governments doing to either encourage or hinder these movements? How are current migrations different from earlier eras? Is this gendered, and if so, how and why? The objective of this course is to explore the above questions through academic and policy published literature. prereq: Soph, jr, or sr

SOC 3507. Immigration to the United States: Beyond Walls. (DSJ; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Immigration is one of the most politically and emotionally charged issues in the United States today. It is also poorly understood. Assumptions, myths, and misinformation about US immigration and immigrants are routinely and increasingly manifested in acrimonious political debates, news stories and sound bites, and our daily conversations and interactions with one another in the very communities in which we live and work. At the same time, US immigration and immigrants have been, are, and will continue to be an essential and vibrant part of our lived and shared experiences as individuals and communities, Minnesotans and Americans, and global citizens.

SOC 3511. World Population Problems. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Summer)
This class is an introduction to the contemporary issues that accompany such dramatic population change, including fertility change, disease experiences, migration as opportunity and challenge and human-environment conflict. Further, we will examine the roles of global organizations, national governments, and culture in shaping and reshaping populations. prereq: [SOC 1001] recommended, Sociology majors/minors must register A-F

SOC 3511H. Honors: World Population Problems. (GP; 3 cr. ; A-F only; Periodic Fall & Spring)
This class is an introduction to the contemporary issues that accompany such dramatic population change, including fertility change, disease experiences, migration as opportunity and challenge and human-environment conflict. Further, we will examine the roles of global organizations, national governments, and culture in shaping and reshaping populations. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. ? Interview a current Sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor. prereq: [SOC 1001] recommended, Sociology majors/minors must register A-F

SOC 3613V. Honors: Stuffed and Starved: The Politics of Eating. (GP,WI,SOCS; 3 cr. ; A-F only; Periodic Fall & Spring)
The course takes a cross-cultural, historical, and transnational perspective to the study of the global food system. Themes explored include: different cultural and social meanings attached to food; social class and consumption; the global food economy; global food chains; work in the food sector; the alternative food movement; food justice; environmental

consequences of food production. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: - Sign up and prepare 3-4 discussion questions in advance of at least one class session. - Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). - Write two brief (1-page) reflection papers on current news or a two-page critique of a class reading - Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. - Interview a current sociology/Global Studies graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the professor.

SOC 3613W. Stuffed and Starved: The Politics of Eating. (GP,WI,SOCS; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course takes a cross-cultural, historical, and transnational perspective to the study of the global food system. Themes explored include: different cultural and social meanings attached to food; social class and consumption; the global food economy; global food chains; work in the food sector; the alternative food movement; food justice; environmental consequences of food production. prereq: Soc majors/minors must register A-F

SOC 3641. Understanding New Zealand: Culture, Society, and Environment. (CIV,GP; 3 cr. ; A-F only; Periodic Summer)
This course introduces students to New Zealand society in a 3-week global seminar, covering political structures, indigenous rights, immigration trends, and environmental politics. New Zealand is one of the world's most remote inhabited land-masses, and this remoteness has had a significant impact on its environmental and human history. Like the United States, New Zealand is thought of as a "settler society" that is now largely populated by descendants of people who migrated from Europe in the last couple of centuries. Like the United States it is a long-established democracy, with significant levels of immigration from Europe and Asia. Unlike the United States, the indigenous Maori population comprise around 1/6 of the population giving indigenous issues an unusual prominence in politics and society compared to peer countries such as the US, Canada, Australia, or Scandinavia to which NZ is often compared by social scientists. The predominant language spoken in the country is English, giving students the ability to quickly engage with the local population in formal and informal settings, and access local resources for study such as libraries, archives, speakers from universities, civic organizations, and government. Thematically the course has a continuing focus on indigenous rights, immigration, and the environment in a long-established democracy. Methodologically the course gives students an opportunity to engage with several important social research methods including reading comparative social science that puts New Zealand in context with similar countries; archival and biographical research, and social observation of public spaces. Through the instructor's contacts with colleagues in New Zealand, students also have the opportunity to engage in joint discussions with New Zealand university students about shared assigned readings about New Zealand society, and meet community members in a range of informal and formal settings. Assignments have students undertake reflective journaling on their observations of New Zealand, write a biographical profile from archival sources, and complete a short research paper on a topical issue of the students' choice using academic literature, official statistics, and news media.

SOC 3671. Chinese Society: Culture, Networks, & Inequality. (3 cr. ; A-F or Audit; Periodic Fall)
Introduces students to sociological perspectives and analyses of cultures, social networks, and socioeconomic inequalities in post-1980 China. In addition to lectures, the instructor will show video clips about various backgrounds of China and group discussions will be organized to exchange opinions about issues of common interest. Students will gain a basic understanding of how Chinese society operates today. prereq: 1001 recommended, soc majors/minors must register A-F

SOC 3681. Gender and the Family in the Islamic World. (; 3 cr. ; A-F only; Periodic Spring)
This course explores the experiences of Muslim women and Muslim families from a historical and comparative perspective. Expanding the discussion on Muslim women's lives and experiences beyond the Middle East, by also centralizing on the experiences of Muslim women and families outside of this geographical area highlights the complex and diverse everyday experiences of Muslim women around the world. This wider lens exposes the limitations intrinsic in the stereotypical representation of Muslims in general and Muslim women in particular. We will explore the intricate web of gender and family power relations, and how these are contested and negotiated in these societies. Some of the themes the course explores include the debates on Muslim women and colonial representations, sexual politics, family, education and health, women and paid work, gender and human rights, and Islamic feminisms debates. prereq: At least soph; 1001 recommended

SOC 3701. Social Theory. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
This course provides an introductory overview of major social theories ranging from the foundational sociological theories of Marx, Weber and Durkheim to contemporary theories of postmodernism and globalization. We will examine a range of theories with particular attention to their treatments of core sociological questions and concerns. prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3721. Principles of Social Psychology. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Social psychology is at the intersection of macro and micro sociology, linking social structures, interpersonal relationships and interactions, attitudes, values and the self-concept. Principles of social psychology are drawn from multiple theoretical perspectives, including symbolic interactionism, expectation states theory, social structure and personality, and the life course. This course covers a broad range of topics as well as the diverse methods that social psychologists use to study them (for example, experiments, surveys, ethnographic observation). prereq: 1001 recommended; soc majors/minors must register A-F

SOC 3801. Sociological Research Methods. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
This course provides an introduction to the materials and methods of social science research in a comprehensive and critical way. The course begins by introducing social science research, including philosophical and theoretical foundations. The course then covers the primary components of research design, including conceptualization, operationalization and measurement, primary and secondary data collection and sources, sampling, and the logic of comparison(s). prereq: 1001 recommended; soc majors must register A-F

SOC 3811. Social Statistics. (MATH; 4 cr. ; Student Option; Every Fall & Summer)
This course will introduce majors and non-majors to basic statistical measures and procedures that are used to describe and analyze quantitative data in sociological research. The topics include (1) frequency and percentage distributions, (2) central tendency and dispersion, (3) probability theory and statistical inference, (4) models of bivariate analysis, and (5) basics of multivariate analysis. Lectures on these topics will be given in class, and lab exercises are designed to help students learn statistical skills and software needed to analyze quantitative data provided in the class. prereq: Credit will not be granted if credit has been received for Soc 5811 (Soc 5811 offered Fall terms only). Undergraduates with strong math background are encouraged to register for 5811 in lieu of 3811. Soc Majors/ Minors must register A-F.

SOC 4090. Topics in Sociology. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule. prereq: 1001 recommended; soc majors/minors must register A-F; cr will not be granted if cr has been received for the same topics title

SOC 4093. Directed Study. (1-4 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study at junior or senior level. Prereq instr consent, dept consent, college consent; soc majors/minors must register A-F.

SOC 4094W. Capstone Experience: Directed Research (4 cr.). (WI; 4 cr. ; A-F only; Every Fall & Summer)
Faculty guided and self directed research experience at junior/senior level. This is designed to: a) provide students with an

opportunity to reflect on what they have learned as a sociology major; b) use that knowledge to write a sociological analyses; and c) think about how the knowledge, skills, and insights of the sociological enterprise can be used and applied outside of the University. Through this one:one capstone experience majors will emphasize the relationship between a sociological perspective and critical thinking, effective communication, and meaningful civil engagement. This Capstone Experience: Directed Research is to include but not limited to: bi-weekly meetings, literature review, multiple drafts and revisions, etc. prereq: 1001, 3701, 3801, 3811, at least 12 cr upper div sociology electives, dept & instructor consent.

SOC 4101V. Honors: Sociology of Law. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course will consider the relationship between law and society, analyzing law as an expression of cultural values, a reflection of social and political structure, and an instrument of social control and social change. Emphasizing a comparative perspective, we begin by discussing theories about law and legal institutions. We then turn our attention to the legal process and legal actors, focusing on the impact of law, courts, and lawyers on the rights of individuals. Although this course focuses on the US legal system, we will explore issues of the relationship between US law and global law and concepts of justice. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: - Honors students will be expected to interview a current Sociology graduate student working on a LCD topic. Following this, each student will individually be expected to do an in-class power point presentation explaining how the interviewees? research relates with themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. - Sign up and prepare 3-4 discussion questions in advance of at least one class session. - Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). - Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading - Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. prereq: honors student, [[SOC 1001] and [SOC 1101 or 3101 or 3102]] recommended, Sociology majors/minors must register A-F

SOC 4101W. Sociology of Law. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
This course will consider the relationship between law and society, analyzing law as an expression of cultural values, a reflection of social and political structure, and an instrument of social control and social change. Emphasizing a comparative perspective, we begin by discussing theories about law and legal institutions. We then turn our attention to the legal process and legal actors, focusing on the impact of law, courts, and lawyers on the rights of individuals. Although this course focuses on the US legal system, we will explore issues of the relationship between US law and global law and concepts of justice. prereq: [[SOC 1001] and [SOC 1101 or 3101 or 3102]] recommended, Sociology majors/minors must register A-F

SOC 4102. Criminology. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This class seeks to develop an understanding of patterns of crime and punishment in the United States (including American particularities in international comparison), their social, political, economic, cultural, and institutional conditions, and how these patterns relate to broader sociological themes. We will examine a cross-section of most outstanding recent and some (by now) classical criminological and sociological books and a few articles that have attracted much attention among scholars and/or the broader public. prereq: [SOC 3101 or SOC 3102 or instr consent], Sociology majors/minors must register A-F

SOC 4102H. Honors: Criminology. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This class seeks to develop an understanding of patterns of crime and punishment in the United States (including American particularities in international comparison), their social, political, economic, cultural, and institutional conditions, and how these patterns relate to broader sociological themes. We will examine a cross-section of most outstanding recent and some (by now) classical criminological and sociological books and a few articles that have attracted much attention among scholars and/or the broader public. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: ? Honors students will be expected to interview a current Sociology graduate student working on a LCD topic. Following this, each student will individually be expected to do an in-class power point presentation explaining how the interviewees? research relates with themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. prereq: Honors student, [SOC 3101 or SOC 3102 or instr consent], Sociology majors/minors must register A-F

SOC 4104. Crime and Human Rights. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course addresses serious violations of humanitarian and human rights law, efforts to criminalize those violations (laws and institutions), and consequences of these efforts. Special attention will be paid to the impact interventions have on representations and memories of atrocities on responses and the future of cycles of violence. Case studies on Holocaust, Balkan wars, Darfur, My Lai massacre, etc. Criminal justice, truth commissions, vetting, compensation programs. prereq: SOC 1001, at least one 3xxx SOC course recommended, Sociology majors/minors must register A-F

SOC 4104H. Honors: Crime and Human Rights. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This course addresses serious violations of humanitarian and human rights law, efforts to criminalize those violations (laws and institutions), and consequences of these efforts. Special attention will be paid to the impact interventions have on representations and memories of atrocities on responses and the future of cycles of violence. Case studies on Holocaust, Balkan wars, Darfur, My Lai massacre, etc. Criminal justice, truth commissions, vetting, compensation programs. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: ? Honors students will be expected to interview a current Sociology graduate student working on an LCD topic. Following this, each student will individually be expected to do an in-class PowerPoint presentation explaining how the interviewees? research relates to themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. prereq: SOC 1001, at least one 3xxx SOC course recommended, Sociology majors/minors must register A-F

SOC 4105. Sociology of Punishment and Corrections. (; 3 cr. ; A-F or Audit; Periodic Spring)
The purpose of this class is to develop a working understanding of the ?sociology of punishment.? To that end, the course focuses on three interrelated questions: How do various social factors (the economy, culture, crime, media, race relations, etc.) shape the development of criminal punishment? Why does punishment differ across time and place? How do penal laws, practices, and institutions affect individuals, groups, and communities? The course combines lectures and small and large group discussions. prereq: 3101 or 3102 or instr consent; soc majors/minors must register A-F

SOC 4106. Crime on TV. (3 cr. ; Student Option; Every Fall)
This course uses television shows to explore sociological perspectives on crime and

punishment. We will critically examine how (and to what extent) four television series represent or distort prevailing knowledge about crime and punishment. prereq: recommended [1001 or 1001V, 1101 or 3101 or 3102]; Soph or above or instr consent; soc majors/minors must register A-F.

SOC 4108. Current Issues in Crime Control. (; 3 cr. ; Student Option; Periodic Spring & Summer)
Selected current criminal justice policies from perspective of courts, legislature, community, and interest groups. Impact of criminal justice policy changes on society and on social control agencies. prereq: Soc majors/minors must register A-F

SOC 4111. Deviant Behavior. (; 3 cr. ; A-F or Audit; Periodic Fall)
This course considers why and how certain attributes and behaviors are defined as deviant, the consequences of deviant labels, and how norms, values, and rules are made and enforced. We will discuss basic concepts that cut across deviance theories and research, including social control, subcultures and deviant careers. We will explore theories of and societal reaction to deviant behavior. We will also discuss methodology and how the ?social facts? of deviance are determined and disseminated. Finally, we will examine case studies addressing crime, organizational and occupational deviance, substance use, sexuality, body image, and more. prereq: 3101 or 3102 or instr consent; soc majors/minors must register A-F

SOC 4113. Sociology of Violence: Bedrooms, Backyards, and Bars. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course looks at violent behavior across a wide variety of social arenas, bedrooms, backyards, and bars, being some common places where violence occurs. Students will wrestle with definitions of violence and the circumstances in which behavior is or isn't categorized as violent. A major theme will be how violence operates as a property of institutional arrangements, organizational practices, and interpersonal situations. Subtopics intersecting violence include cohorts (race, class, & gender), sport, sex, emotion, the State, and the environment. Soc Majors and Minors must register A/F. Pre-req of Soc 1001, Soc 1101, 3101 or 3102 is recommended.

SOC 4114. Women & the Criminal Justice System. (3 cr. ; Student Option; Periodic Summer)
Historical/current explanations for female criminality. Current trends in women's participation in crime, their treatment in the legal system. prereq: recommend 3101 or 3102 or instr consent; soc majors/minors must register A-F

SOC 4125. Policing America. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course is an in-depth sociological analysis of the origins, composition, and effects of policing in contemporary U.S. society. Throughout the course, we focus on using a social science lens to understand policing dynamics and how policing shapes social life. We will pay particular attention to the ways in which race, class, and gender inequalities are reflected in and reshaped by policing practices. Throughout the course, we will draw on contemporary media stories, podcast, documentaries, and guest visitors to connect scholarship with the world around us. prereq: 3101 or 3102 recommended or instr consent, soc majors/minors must register A-F

SOC 4135. Sociology of White-Collar Crime. (3 cr. ; A-F or Audit; Periodic Spring)
This course deals with diverse types of white-collar crime (high status, occupational, organizational crimes), their causation, the damage they cause, and their control. We will read some of the outstanding literature on these issues and explore well-known cases in depth. There will be lectures and discussion in the classroom. We will explore what white-collar crime teaches us about the nature and explanation of crime and about the nature of criminal justice and other government social control. prereq: [SOC 3101 or SOC 3102 or instr consent]; soc majors/minors must register A-F

SOC 4135H. Honors: Sociology of White-Collar Crime. (; 3 cr. ; A-F only; Periodic Spring)
This course deals with diverse types of white-collar crime (high status, occupational, organizational crimes), their causation, the damage they cause, and their control. We will read some of the outstanding literature on these issues and explore well-known cases in depth. There will be lectures and discussion in the classroom. We will explore what white-collar crime teaches us about the nature and explanation of crime and about the nature of criminal justice and other government social control. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: ? Honors students will be expected to interview a current Sociology graduate student working on a LCD topic. Following this, each student will individually be expected to do an in-class power point presentation explaining how the interviewees? research relates with themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. prereq: Honors, [SOC 3101 or SOC 3102 or instr consent]

SOC 4141. Juvenile Delinquency. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course offers an overview of social theory and research on youth crime and delinquency. We start by critically examining the social facts surrounding the measurement, extent, and distribution of delinquency. Next, we study the principal sociological explanations of delinquent behavior. These theories provide conceptual tools for analyzing delinquency and punishment among groups such as gang members. We then trace youth experiences in the juvenile justice system, from policing, to juvenile court, to probation, and institutionalization. Throughout, we analyze the success or failure of key programs implemented in attempts to prevent or reduce delinquency. prereq: [SOC 3101 or 3102 or instr consent], Sociology majors/minors must register A-F

SOC 4141H. Honors: Juvenile Delinquency. (; 3 cr. ; A-F only; Periodic Fall & Spring)
This course offers an overview of social theory and research on youth crime and delinquency. We start by critically examining the social facts surrounding the measurement, extent, and distribution of delinquency. Next, we study the principal sociological explanations of delinquent behavior. These theories provide conceptual tools for analyzing delinquency and punishment among groups such as gang members. We then trace youth experiences in the juvenile justice system, from policing, to juvenile court, to probation, and institutionalization. Throughout, we analyze the success or failure of key programs implemented in attempts to prevent or reduce delinquency. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: ? Honors students will be expected to interview a current Sociology graduate student working on a LCD topic. Following this, each student will individually be expected to do an in-class power-point presentation explaining how the interviewees? research relates with themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. prereq: honors student, [SOC 3101 or 3102 or instr consent], Sociology majors/minors must register A-F

SOC 4147. Sociology of Mental Health & Illness. (; 3 cr. ; A-F or Audit; Periodic Spring)
This course is designed to give you an overview of the ways a sociological perspective informs our understanding of mental health and illness. While sociologists, psychologists, psychiatrists, social workers, and others all deal with issues of mental illness, they often approach the topic in very different ways. In general, a sociological perspective tends to focus on aspects of the social environment that we often ignore, neglect, or take for granted. It calls attention to how society or groups are organized, who benefits or is hurt by the way things are organized, and what

beliefs shape our behaviors. In viewing mental illness, sociologists have primarily challenged dominant views of mental illness, examined how social relationships play a role in mental illness, questioned the goals and implications of mental health policy and researched how mental health services are organized and provided. prereq: Soc 1001 recommended, Soc majors/minors must register A-F

SOC 4149. Sociology of Killing. (3 cr. ; A-F or Audit; Periodic Fall)
This course will provide a broad overview of the sociology of murder- the intentional, malicious killing of one human by another. This course will go beyond what we see about murder regularly in the media and on popular TV shows and movies. Students will be exposed to a scientific study of homicide. Key topics include the history and laws of murder; information and data sources on murder; demographic attributes of victims and offenders; different types of murder, including among others domestic, serial, mass, and gang-related murder; biological, sociological and psychological theories of the causes of murder; and the strategies involved in the criminal investigation of homicide. prereq: jr, or sr, or grad student, or instr consent; soc majors/minors must register A-F

SOC 4161. Criminal Law in American Society. (; 3 cr. ; Student Option; Every Fall)
Purposes of criminal law and of principles of criminal liability, justification, and excuse. Applications to law of criminal homicide, sexual assault, drugs, and crimes against property, public order, and morals. prereq: 3101 or 3102 or 3111 or instr consent; soc majors/minors must register A-F

SOC 4162. Criminal Procedure in American Society. (; 3 cr. ; Student Option; Every Spring)
How constitutional democracy balances need to enforce criminal law and rights of individuals to be free of unnecessary government intrusion. prereq: 3101 or 3102 or 3111 or instr consent; soc majors/minors must register A-F

SOC 4171. Sociology of International Law: Human Rights & Trafficking. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course takes a sociological approach to international law, considering how history, institutions, power, and interests shape the phenomenon. What is international law, where does it come from, and how does it work? What does international law tell us about globalization and nation-states? Does it make a difference in the world? Does it have a real impact on the day-to-day lives of individuals? When is it followed; when is it ignored? This course takes a broad sociological view of international law. We analyze the actors and processes that constitute international law and then focus on particular substantive areas, including human rights, economic development,environmental concerns, trafficking, and drug interdiction. prereqs: 1001 or 3101 or 3102 or instr consent; soc majors/minors must register A-F

SOC 4190. Topics in Sociology With Law, Criminology, and Deviance Emphasis. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Topics specified in Class Schedule. prereq: [1001, [3101 or 3102]] recommended; soc majors/minors must register A-F; cr will not be granted if cr has been received for the same topics title

SOC 4246. Sociology of Health and Illness. (; 3 cr. ; A-F or Audit; Periodic Spring)
This course is an introduction to the importance of health and illness in people?s lives, how social structures impact who gets sick, how they are treated, and how the delivery of health care is organized. By the end of the course you will be familiar with the major issues in the sociology of health and illness, and understand that health and illness are not just biological processes, but profoundly shaped by the organization of society. prereq: One sociology course recommended; soph or above; soc majors/minors must register A-F

SOC 4305. Environment & Society: An Enduring Conflict. (ENV; 3 cr. ; A-F or Audit; Every Fall)
Examines the interaction between human society and the natural environment, focusing on the contemporary and global situation. Takes the perspective of environmental sociology concerning the short-range profit-driven and ideological causes of ecological destruction. Investigates how society is reacting to that increasing destruction prereq: 1001 recommended or a course on the environment, soc majors/minors must register A-F

SOC 4309. Religion in American Public Life: Culture, Politics, & Communities. (CIV; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
How diversity/vitality of American religion shape public life. How religious groups engage in political action, foster understandings of democracy/styles of civic participation. Volunteering/service activities. Race, poverty, the family, sexuality. prereq: Soc majors/minors must register A-F

SOC 4309H. Honors: Religion in American Public Life - Culture, Politics, & Communities. (CIV; 3 cr. ; A-F only; Periodic Fall & Spring)
How diversity/vitality of American religion shape public life. How religious groups engage in political action, foster understandings of democracy/styles of civic participation. Volunteering/service activities. Race, poverty, family, sexuality. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. ? Interview a current Sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor.

SOC 4311. Power, Justice & the Environment. (DSJ; 3 cr. ; A-F or Audit; Periodic Spring)
This course introduces students to the theoretical and historical foundations of environmental racism and environmental inequality more broadly. We will examine and interrogate both the social scientific evidence concerning these phenomena and the efforts by community residents, activists, workers, and governments to combat it. We will consider the social forces that create environmental inequalities so that we may understand their causes, consequences, and the possibilities for achieving environmental justice prereq: SOC 1001 recommended

SOC 4315. Never Again! Memory & Politics after Genocide. (GP; 3 cr. ; A-F or Audit; Spring Odd Year)
Course focuses on the social repercussions and political consequences of large-scale political violence, such as genocide, war crimes, and crimes against humanity. Students learn how communities and states balance the demands for justice and memory with the need for peace and reconciliation and addresses cases from around the globe and different historical settings. prereq: SOC 1001 or 1011V recommended, A-F required for Majors/Minors.

SOC 4319. ?Jews will not replace us!? Global Antisemitism from its Origins to the Present. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course will explore the topic of antisemitism, its history and cultural logic, and the relation to other forms of exclusion tied to race, religion, and citizenship in modern times. Starting with the history of Jewish emancipation in Europe and the subsequent debates about the ?Jewish Question,? students will learn to identify the key features of political antisemitism and the ways that antisemitism has been explained by different social theories, including Marxism, Functionalism, and Critical theory. The course will examine the differences and continuities between older theological forms of anti-Judaism and modern antisemitism, the connections between antisemitism, nativism, and xenophobia in the US and globally, and engage with current debates regarding the correlation between anti-Zionism and antisemitism. We will also explore Jewish social, political, and ideological responses to antisemitism in Europe and the US, from the Holocaust to the present. Pre-reqs: sophomore or above; Soc 3701 recommended; soc majors/minors must register A-F

SOC 4321. Globalize This! Understanding Globalization through Sociology. (GP; 3 cr. ; A-F or Audit; Periodic Fall)
From the city streets of Bangalore to the high plateaus of La Paz to the trading floors of New York City, people from around the world are

becoming increasingly interdependent, creating new and revitalizing old forms of power and opportunity, exploitation and politics, social organizing and social justice. This course offers an overview of the processes that are forcing and encouraging people?s lives to intertwine economically, politically, and culturally. prereq: Soc majors/minors must register A-F

SOC 4411. Terrorist Networks & Counterterror Organizations. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Terror involves using violent actions to achieve political, religious, or social goals. This course examines theories and evidence about the origins, development, and consequences of terrorist networks. It analyzes efforts to prevent, investigate, and punish terrorists by counterterror organizations, including law enforcement, security, and military forces. Graduate and honors students are expected to demonstrate greater depth of discussion, depth and, to a degree, length of writing assignments, presentations, and leadership of the students. Prereq: Sociology majors/minors must register A-F

SOC 4411H. Honors: Terrorist Networks & Counterterror Organizations. (; 3 cr. ; A-F only; Periodic Fall & Spring)
Terror involves using violent actions to achieve political, religious, or social goals. This course examines theories and evidence about the origins, development, and consequences of terrorist networks. It analyzes efforts to prevent, investigate, and punish terrorists by counterterror organizations, including law enforcement, security, and military forces. Graduate and honors students are expected to demonstrate greater depth of discussion, depth and, to a degree, length of writing assignments, presentations, and leadership of the students. Honors students registering for Soc 4411H: Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. ? Interview a current Sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor. Prereq: Honors

SOC 4451. Sport, Culture & Society. (3 cr. ; A-F or Audit; Periodic Fall)
This course is intended to stimulate critical, sociological thinking about sport? how it is socially organized, who participates in what and why, what role (or roles) sport plays in society, and what sporting practices tell us about contemporary social life more generally. It begins from and is grounded in the notion that sport is one of the most powerful and paradoxical institutions in the modern world. The course is intended for a wide range of undergraduates, though some familiarity with basic social scientific thinking and techniques will be helpful. prereq: SOC 1001 recommended, Sociology majors/minors must register A-F

SOC 4451H. Honors: Sport, Culture & Society. (; 3 cr. ; A-F only; Periodic Fall)
This course is intended to stimulate critical, sociological thinking about sport? How it is socially organized, who participates in what and why, what role (or roles) sport plays in society, and what sporting practices tell us about contemporary social life more generally. It begins from and is grounded in the notion that sport is one of the most powerful and paradoxical institutions in the modern world. The course is intended for a wide range of undergraduates, though some familiarity with basic social scientific thinking and techniques will be helpful. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Examples of additional requirements may include: ? Honors students will be expected to interview a current Sociology graduate student working on a topic of interest. Following this, each student will individually be expected to do an in-class power point presentation explaining how the interviewees? research relates with themes presented in the course. Students will also be expected to meet as a group and individually with the professor four times during the course semester. ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. prereq: Honors; SOC 1001 recommended

SOC 4461. Sociology of Ethnic and Racial Conflict. (DSJ; 3 cr. ; A-F or Audit; Periodic Fall)
We will examine conceptual and theoretical approaches to the sociological study of ethnic and racial conflict around the globe, looking at ethnicity and race as distinctive but overlapping social constructions of collective identity that underpin patterns of social conflict and systems of power and privilege. We will also explore the difference between race and ethnicity, the various ways in which racial, ethnic, and national identities are constructed in different countries, individual versus group approaches to the study of prejudice and discrimination, and the racialization of ethnic and religious groups prereq: 1001 recommended; soc majors/minors must register A-F

SOC 4511. Sociology of Children & Youth. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course examines the lives of youth in today's society. It explores the influence of social contexts, institutions, social structures, and social location (e.g. social class, race, gender) on youth experiences and differential opportunities and outcomes. The course also considers how youth act as agents in their own lives and shape their social worlds and society. Additionally, the course looks at some of the problems or challenges that contemporary children, adolescents, and young adults encounter, and considers social policies and interventions aimed to address these and support young people. prereq: 1001 recommended, soc majors/minors must register A-F

SOC 4521. Love, Sex, & Marriage. (3 cr. ; A-F or Audit; Periodic Fall)
This course will provide an overview of sociological approaches to intimate human relationships. What can sociology and related disciplines tell us about these seemingly intensely personal subjects? More than you might think! Specific topics we will cover include love and romance, dating and mate selection, sexuality, cohabitation, marriage, and divorce. The focus is on contemporary American society, but current U.S. practices are placed in historical and cross-cultural context. prereq: [1001 or instr consent], soc majors/minors must register A-F

SOC 4521H. Honors: Love, Sex, & Marriage. (; 3 cr. ; A-F only; Periodic Fall)
This course will provide an overview of sociological approaches to intimate human relationships. What can sociology and related disciplines tell us about these seemingly intensely personal subjects? More than you might think! Specific topics we will cover include love and romance, dating and mate selection, sexuality, cohabitation, marriage, and divorce. The focus is on contemporary American society, but current U.S. practices are placed in historical and cross-cultural context. Honors students registering for Soc 4521H: Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: - Sign up and prepare 3-4 discussion questions in advance of at least one class session. - Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). - Write two brief (1-page) reflection papers on current news or a two-page critique of a class reading - Attend a presentation, workshop, or seminar on a related topic for this class and write a 2-page maximum reflective paper. - Interview a current sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the professor. prereq: Honors

SOC 4551. Sociology of Sexualities. (DSJ,SOCS; 3 cr. ; A-F or Audit; Periodic Spring)
In this course we will examine social theories and sociological research on the topic of sexuality. We will explore the concept of

sexuality as it intersects with race, gender, age, and class. This course is designed to give you a basic understanding of sociological implications of sexuality in the United States. This course is intended to help you develop your analytical and critical thinking skills. You will be asked to move beyond your own experience and perspectives to sociologically analyze and evaluate over-simplified explanations of past and contemporary issues as they appear in our course readings. prereq: Sociology majors/minors must register A-F

SOC 4551H. Honors: Sociology of Sexualities. (DSJ,SOCS; 3 cr. ; A-F only; Periodic Spring)
In this course we will examine social theories and sociological research on the topic of sexuality. We will explore the concept of sexuality as it intersects with race, gender, age, and class. This course is designed to give you a basic understanding of sociological implications of sexuality in the United States. This course is intended to help you develop your analytical and critical thinking skills. You will be asked to move beyond your own experience and perspectives to sociologically analyze and evaluate over-simplified explanations of past and contemporary issues as they appear in our course readings. Additional special assignments will be discussed with honors participants who seek to earn honors credit toward the end of our first class session. Students will also be expected to meet as a group and individually with the professor four times during the course semester. Examples of additional requirements may include: ? Sign up and prepare 3-4 discussion questions in advance of at least one class session. ? Work with professor and TA on other small leadership tasks (class discussion, paper exchange, tour). ? Write two brief (1-page) reflection papers on current news, or a two-page critique of a class reading ? Attend a presentation, workshop, or seminar on a related topic for this class and write a 2 page maximum reflective paper. ? Interview a current Sociology graduate student and present briefly in class or write a reflective piece, not more than 2 pages in length, to be submitted to the Professor. prereq: Honors

SOC 4703. A Nation Divided: Identity, Precarity, & Polarization. (CIV; 3 cr. ; Student Option; Periodic Fall)
This course explores how individuals and groups experience and understand current economic and political polarization in their daily lives. Our explorations will roam across changes in media and popular culture, work, religion, family, and social movements. prereq: 1001 recommended, soc majors/minors must register A-F

SOC 4821. Measuring the Social World: Concepts and Analysis. (3 cr. ; A-F only; Periodic Spring)
In this course, you will develop practical social science data analysis skills for use in the non-profit or corporate workplace or in a graduate program of research. You will assess the measurement of important social concepts, like race, health, or education, in large social surveys, and the strengths and weaknesses of those different measurement techniques. You will conduct data analysis on large datasets (see, e.g., www.ipums.org) using a statistical software program, such as STATA. You will develop a substantive, empirical final project (poster and paper) based on your analysis. prereq: SOC 3801 or equiv, and SOC 3811 or equivalent

SOC 4881. Population Studies Research Practicum. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Students enrolled in this course will gain hands-on experience with population studies research by (1) working under the mentorship of an individual researcher or a research team at the Minnesota Population Center (MPC) and (2) attending and reflecting in writing on MPC's weekly research seminar. In addition, students in the course will meet weekly with the instructor to discuss their research experiences and to develop and present a final research poster.

SOC 4966W. Capstone Experience: Seminar. (WI; 3 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
This course is designed to: a) provide students with an opportunity to reflect on what they have learned as a sociology major; b) use that knowledge to write a sociological analyses - often based on community service learning; and c) think about how the knowledge, skills, and insights of the sociological enterprise can be used and applied outside of the University. Through this course sociology majors will emphasize the relationship between a sociological perspective and critical thinking, effective communication, and meaningful civic engagement. This class is the final step in the sociology undergraduate major. prereq: 1001, 3701, 3801, 3811, 12 cr upper div sociology, dept consent

SOC 4977V. Senior Honors Proseminar I. (WI; 3 cr. ; A-F or Audit; Every Fall)
Exploring contemporary research for senior thesis. Guidance in defining a problem and reviewing prior theory/research. Presentation/ discussion with faculty researchers. prereq: 3701, 3801, 3811, 9 additional upper div sociology cr, sr soc honors major, dept consent

SOC 4978V. Senior Honors Proseminar II. (WI; 3 cr. ; A-F or Audit; Every Spring)
Developing the methodology of senior project, researching it, and writing the thesis. Students work individually or in small groups in consultation with seminar director and other faculty. Group discussion of individual projects. prereq: [4977V or instr consent], 3701, 3801, 3811, at least 9 additional upper div soc cr, sr soc honors major, dept consent

SOC 4994W. Capstone Experience: Directed Research (1 cr.). (WI; 1 cr. ; A-F only; Every Fall & Spring)
Guided individual research for the sociology major's Capstone requirement, conducted in conjunction with enrollment in an upper division sociology elective. This is designed to: a) provide students with an opportunity to reflect on what they have learned as a sociology major; b) use that knowledge to write a sociological analyses; and c) think about how the knowledge, skills, and insights of the sociological enterprise can be used and applied outside of the University. Through this one:one capstone experience, using the structure and foundation of the 6th Sociology elective, majors will emphasize the relationship between a sociological perspective and the emphasis of the course. The final paper created for 4994W is in addition to the other 6th Sociology elective course requirements. prereq: 1001/1011V, 3701, 3801, 3811, and at least 12 cr upper div sociology electives; dept & instructor consent. Students are only authorized to register for Soc 4994W in conjunction with a 6th Sociology Elective.

SOC 5090. Topics in Sociology. (; 1-3 cr. [max 9 cr.] ; Student Option; Periodic Spring)
Topics specified in Class Schedule. prereq: Undergrad soc majors/minors must register A-F

SOC 5101. Sociology of Law. (3 cr. ; A-F or Audit; Every Fall & Spring)
This course will consider the relationship between law and society, analyzing law as an expression of cultural values, a reflection of social and political structure, and an instrument of social control and social change. Emphasizing a comparative perspective, we begin by discussing theories about law and legal institutions. We then turn our attention to the legal process and legal actors, focusing on the impact of law, courts, and lawyers on the rights of individuals. Although this course focuses on the U.S. legal system, we will explore issues of the relationship between U.S. law and global law and concepts of justice. prereq: graduate student

SOC 5104. Crime and Human Rights. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course addresses serious violations of humanitarian and human rights law, efforts to criminalize those violations (laws and institutions), and consequences of these efforts. Special attention will be paid to the impact interventions have on representations and memories of atrocities on responses and the future of cycles of violence. Case studies on Holocaust, Balkan wars, Darfur, My Lai massacre, etc. Criminal justice, truth commissions, vetting, compensation programs. prereq: at least one 3xxx SOC course recommended

SOC 5171. Sociology of International Law: Human Rights & Trafficking. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
This course takes a sociological approach to international law, considering how history, institutions, power, and interests shape the phenomenon. What is international law, where does it come from, and how does it work? What does international law tell us about globalization and nation-states? Does it make a difference in the world? Does it have a real impact on the day-to-day lives of individuals? When is it followed; when is it ignored? This course takes a broad sociological view of international law. We analyze the actors and processes that constitute international law and then focus on particular substantive areas, including human rights, economic development,environmental concerns,

trafficking, and drug interdiction. prereqs: Graduate student or instructor consent

SOC 5221. Sociology of Gender. (3 cr. ; A-F or Audit; Periodic Spring)
Gender is something so fundamental to our lives, to our identities, and how we interact with others that we often take it for granted. However, understandings of gender vary across time and place, and even within cultures, making it clear that our understandings of gender are not universal or timeless. In this class, we will examine how gender intersects with race and sexuality, as well as how it impacts areas of our lives such as child socialization, family structure, the media, intimate relationships, and the workplace.

SOC 5246. Disease, Disasters, and Other Killers. (ENV,HIS; 3 cr. ; A-F or Audit; Every Fall)
This course studies the social pattern of mortality, beginning with demographic transition theory. Students will study specific causes of death or theories of etiology, including theories about suicide, fundamental cause theory, and the role of early life conditions in mortality. Students learn tools for studying mortality, including cause of death classifications and life tables. Grad student or instructor consent.

SOC 5315. Never Again! Memory & Politics after Genocide. (GP; 3 cr. ; A-F or Audit; Spring Odd Year)
Course focuses on the social repercussions and political consequences of large-scale political violence, such as genocide, war crimes, and crimes against humanity. Students learn how communities and states balance the demands for justice and memory with the need for peace and reconciliation and addresses cases from around the globe and different historical settings. prereq: SOC 1001 or 1011V recommended, A-F required for Majors/Minors.

SOC 5411. Terrorist Networks & Counterterror Organizations. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Theories/evidence about origins, development, and consequences of terrorist networks. Efforts to prevent, investigate, and punish terrorists by use of law enforcement, security, and military forces. Terror involves using violent actions to achieve political, religious, or social goals. This course examines theories and evidence about the origins, development, and consequences of terrorist networks. It analyzes efforts to prevent, investigate, and punish terrorists by counterterror organizations, including law enforcement, security, and military forces. Graduate and honors students are expected to demonstrate greater depth of discussion, depth and to a degree length of writing assignments, presentations, and leadership of the students. Prereq: Sociology Major/Minors must register A-F

SOC 5446. Comparing Healthcare Systems. (GP; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Examination of national health systems from an international comparative perspective, emphasizing social, organizational, political, economic, cultural, and ethical dimensions of healthcare policies and programs to deliver services and their impacts on the health of population groups. The comparative approach will enable students to acquire a better understanding of the problems and potential for reforming and improving U.S. health care delivery. Students enrolled in Soc 5446 (graduate level) are expected to demonstrate greater depth of discussion, depth and to a degree length of writing assignments, presentations, and leadership of the students. prereq: Soc majors/minors must register A-F

SOC 5455. Sociology of Education. (; 3 cr. ; Student Option; Every Fall)
Structures and processes within educational institutions. Links between educational organizations and their social contexts, particularly as these relate to educational change. prereq: 1001 or equiv or instr consent; soc majors/minors must register A-F

SOC 5511. World Population Problems. (3 cr. ; Student Option; Every Fall)
Population growth, natural resources, fertility/mortality in less developed nations, population dynamics/forecasts, policies to reduce fertility. prereq: Soc majors/minors must register A-F, credit will not be granted if credit has been received for PA 5301

SOC 5811. Social Statistics for Graduate Students. (MATH; 4 cr. ; Student Option; Every Fall)
This course will introduce statistical measures and procedures that are used to describe and analyze quantitative data in sociological research. The topics include (1) frequency and percentage distributions, (2) central tendency and dispersion, (3) probability theory and statistical inference, (4) models of bivariate analysis, and (5) basics of multivariate analysis. Lectures on these topics will be given in class, and lab exercises are designed to help students learn statistical skills and software needed to analyze quantitative data provided in the class. Soc 5811 is intended for new graduate students, undergraduate honors students, and students pursuing the Sociology BS degree. prereq: Credit will not be granted if credit has been received for Soc 3811 (Soc 5811 offered Fall terms only). Undergraduates with a strong math background are encouraged to register for 5811 in lieu of 3811. Soc majors must register A-F. 5811 is a good social statistics foundation course for MA students from other programs.

Software Engineering (SENG)

SENG 5115. Graphical User Interface Design, Evaluation, and Implementation. (; 2 cr. [max 3 cr.] ; A-F or Audit; Every Fall & Spring)
Design and evaluation of interactive application interfaces, user- and task-centered approaches to design, guidelines for graphical design, interface evaluation techniques, current interface trends, including web interfaces and information visualization. Group projects that include designing, prototyping, and implementing an application interface. prereq: Grad SEng major

SENG 5116. Graphical User Interface Toolkits. (; 2-3 cr. ; A-F or Audit; Periodic Fall)
Toolkit-centered introduction to GUI implementation technology. Students learn to use a GUI toolkit to implement a graphical application. Introduction to advanced techniques, including constraint-based data management, 3D visualization tools, and toolkit structure and design. prereq: Grad SEng major

SENG 5130. Introduction to Internet of Things: Systems-Level Design and Experimentation. (3 cr. ; A-F or Audit; Every Spring)
Project-based examples from modern "Internet of Things" (IoT) systems. Hands-on experiments with core wireless hardware, sensors, and software elements. Students will gain the practical system-level skills and understandings able to be applied to any IoT system, and walk away with an IoT project created themselves. There will be discussions and team-centric activities focused on market trends, ground-breaking tech and products, security, communication protocols, and exciting emerging technologies related to IoT including machine learning, artificial intelligence, and augmented reality.

SENG 5131. Distributed Application Design and Development. (; 3 cr. ; A-F or Audit; Every Spring)
Java programming, concurrent programming, workflow, distributed database, security, collaborative computing, object-oriented architecture/design, network publishing, messaging architecture, distributed object computing, and intranet. prereq: Grad SEng major

SENG 5132. Web Application Development. (3 cr. ; A-F or Audit; Every Spring)
This course is an in-depth discussion of the challenges and complexities involved in designing and implementing modern web applications. Students will gain experience designing and implementing a project during in the course of the semester.

SENG 5199. Topics in Software Engineering. (; 2-3 cr. [max 6 cr.] ; A-F or Audit; Every Spring)
Topics specified in Class Schedule. prereq: SEng grad student

SENG 5271. Cybersecurity. (3 cr. ; A-F or Audit; Every Spring)
This course introduces the major topics of cyber security. Class time will focus on demonstrations, exercises, mini-projects, and discussions. Topics include authentication, access control, file system forensics, symmetric and asymmetric cryptography, network monitoring and controls, dynamic web site attacks, and network cryptography.

SENG 5511. Artificial Intelligence. (; 2-3 cr. ; A-F or Audit; Periodic Spring)
Introduces ideas and theories of AI. Problem solving, search, inference techniques. Logic and theorem proving. Knowledge representation, rules, frames, semantic networks. Planning and scheduling. Introduces Lisp programming language. prereq: Grad SEng major

SENG 5551. Introduction to Intelligent Robotic Systems. (; 3 cr. ; A-F or Audit; Periodic Fall)
Transformations, kinematics and inverse kinematics, dynamics, and control. Sensing (robot vision, force control, tactile sensing), applications of sensor-based robot control, robot programming, mobile robotics, and micro-robotics. prereq: Grad SEng major

SENG 5707. The Principles of Database Systems. (; 3 cr. ; A-F or Audit; Every Fall)
Fundamental concepts; representing instances; prototypic model shapes; model evolution; interviewing user skills, reverse engineering; mapping to DBMS schema; database querying. prereq: Grad SEng major

SENG 5708. Data Analytics. (; 2-3 cr. ; A-F or Audit; Every Spring)
Applications/motivation. Extended relational, object-relational, and object-oriented data models. Object identifier, types/constructors. Versions, schema evolution. Query language (e.g., recursion, path expressions). Object indices, buffer management, and other implementation issues. Triggers, rules, complex objects, and case studies. prereq: Grad SEng major

SENG 5709. Big Data Engineering and Analytics. (3 cr. ; A-F or Audit; Every Spring)
This course aims to teach students how to evaluate and engineer solutions that traditional data systems cannot handle, as well as various real-world use cases related to big data problems. This course will integrate theory and hands-on learning of various big data systems like NoSQL, streaming architectures, along with popular industry tools for scalable analytics. The focus of the course is largely around big data engineering, with some coverage of data science and analytics.

SENG 5801. Software Engineering I: Overview, Requirements, and Modeling. (; 3 cr. ; A-F or Audit; Every Fall)
Software engineering as a discipline. Preview of topics to be covered in subsequent courses in master of science in software engineering program; in-depth study of requirements engineering; modeling techniques applicable to requirements and specification, including UML and formal modeling. prereq: Grad SEng major

SENG 5802. Software Engineering II: Software Design. (; 3 cr. ; A-F or Audit; Every Spring)
Software design quality, processes that produce quality design, graphical and textual representations, including UML, common problems and patterns that solve them, refactoring. Students develop fluency in object-oriented design, and ability to read, critique, and advocate design ideas. Students work in teams to complete a multiphase project. prereq: Grad SEng major

SENG 5811. Software Testing and Verification. (; 3 cr. ; A-F or Audit; Every Spring)
Theoretical/practical aspects of testing software. Analyzing a requirements document for test conditions. Writing a test plan. Designing, creating, and executing test cases. Recording defects. Writing a test report. prereq: 5801, grad SEng major

SENG 5831. Software Development for Real-Time Systems. (; 2-3 cr. ; A-F or Audit; Periodic Fall)
Analysis, design, verification, and validation of real-time systems. Periodic, aperiodic, and sporadic processes, scheduling theory. Pragmatic issues. prereq: Grad SEng major

SENG 5841. Model-based Development. (; 3 cr. ; A-F or Audit; Every Spring)
Formal specification of software artifacts. Applicability of formal specifications. Methods such as Z, SCR, and Satecharts. Formal analysis. Theorem proving. Reachability analysis. Model checking. Tools such as PVS, Statemate, SPIN, and SMV. prereq: Grad SEng major

SENG 5851. Software Project Management. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Concepts used to manage software projects. Project management cycle: initiation, planning/control, status reporting, review, post-project analysis. Leadership and motivation strategies. Lecture, discussion, individual/team presentations/projects. prereq: Grad SEng major

SENG 5852. Quality Assurance and Process Improvement. (; 2 cr. [max 3 cr.] ; A-F or Audit; Every Fall & Spring)
Theory and application of capability maturity model: process assessment, modeling, and improvement techniques. Life cycle issues related to development and maintenance; quality, safety, and security assurance; project management; and automated support environments. Group projects and case studies. prereq: Grad SEng major

SENG 5861. Introduction to Software Architecture. (; 3 cr. ; A-F or Audit; Periodic Fall)
Software/systems architecture. Representation/design, how they fit into software engineering process. Description of architectures, including representation and quality attributes. prereq: 2nd year, MSSE grad student

SENG 5899. Software Engineering Seminar. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall)
Software engineering trends. Talks by invited speakers, selected readings. prereq: Grad SEng major, instr consent

SENG 5900. Directed Study. (; 1-3 cr. ; Student Option; Every Fall & Spring)
Directed study/research in software engineering. Topics/scope decided in collaboration with instructor.

Soil, Water, and Climate (SOIL)

SOIL 2125. Basic Soil Science. (ENV,PHYS; 4 cr. ; A-F or Audit; Every Fall & Spring)
Basic physical, chemical, and biological properties of soil. Soil genesis classification, principles of soil fertility. Use of soil survey information to make a land-use plan. WWW used for lab preparation information. prereq: [CHEM 1015, CHEM 1017] or CHEM 1021 or equiv

SOIL 2601. The Social Life of Soil. (ENV; 3 cr. ; Student Option; Every Fall)
Soil microorganisms can either promote plant health or wage chemical warfare. And alliances can turn on a dime. Learn about this fascinating dog-eat-dog world and how we can support a rich soil ecosystem that benefits plants and humans.

SOIL 3416. Plant Nutrients in the Environment. (; 3 cr. ; Student Option; Every Spring)
Fundamental concepts in soil fertility and plant nutrition. Discuss dynamics of mineral elements in soil, plants, and the environment. Evaluation, interpretation, and correction of plant nutrient problems. prereq: SOIL 2125

SOIL 3521. Soil Judging. (; 1 cr. [max 3 cr.] ; A-F or Audit; Every Fall)
A field-based course which requires students to apply fundamental knowledge obtained from Basic Soil Science and Field Study of Soils to the description of soils in the field. This course includes an inter-collegiate Soil Judging contest that takes during the course of the class. prereq: An introductory soils course and field studies course.

SOIL 3993. Directed Study. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: Department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements

SOIL 3994. Directed Research. (; 1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: Department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

SOIL 4111. Introduction to Precision Agriculture. (; 3 cr. ; A-F or Audit; Every Spring)
Soil, landscape, and crop spatial variability. GIS, DEM, GPS technologies. Variable rate machinery, PA software, remote sensing. Geostatistics, sampling, experimental designs. Precision integrated crop management. Data acquisition, processing, and management. Socio-economical and e-marketing aspects. prereq: Basic sciences, statistics, soil, agronomy

SOIL 4511. Field Study of Soils. (; 2 cr. ; A-F or Audit; Every Summer)
Learn to write soil profile descriptions in the field. Class requires hands-on experience to determine soil texture, color, and horizon designations in the field. prereq: 2125

SOIL 5125. Soil Science for Teachers and Professionals. (; 4 cr. ; Student Option; Every Fall & Spring)
Basic physical, chemical, and biological properties of soil. Soil genesis classification, principles of soil fertility. Use of soil survey information to make a land-use plan. WWW used for lab preparation information.

SOIL 5232. Vadose Zone Hydrology. (; 3 cr. ; Student Option; Every Fall)
Basic soil physical properties/processes governing transport of mass/energy in soils. Emphasizes water/solute transport through unsaturated root/vadose zones, their impact on subsurface hydrology and on water quality. Lectures, hands-on laboratory exercises, discussion of real world problems, problem solving. prereq: [Math 1271 or equiv], [Phys 1042 or equiv]

SOIL 5555. Wetland Soils. (; 3 cr. ; A-F or Audit; Every Fall)
Morphology, chemistry, hydrology, formation of mineral/organic soils in wet environments. Soil morphological indicators of wet conditions, field techniques of identifying hydric soils for wetland delineations. Peatlands. Wetland benefits, preservation, regulation, mitigation. Field trips, lab, field hydric soil delineation project. prereq: SOIL 1125 or 2125 or equiv or instr consent; concurrent registration is required (or allowed) in SOIL 4511 recommended

SOIL 5611. Soil Biology and Fertility. (; 4 cr. ; Student Option; Every Fall)
Properties of microorganisms that impact soil fertility, structure, and quality. Nutrient requirements of microbes and plants, and mineral transformations in biogeochemical cycling. Symbiotic plant/microbe associations and their role in sustainable agricultural production. Biodegradation of pollutants and bioremediation approaches. prereq: Biol 1009 or equiv, Chem 1021 or equiv; Soil 2125 recommended

SOIL 5993. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

SOIL 5994. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

Somali (SMLI)

SMLI 1221. Beginning Somali. (; 5 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Comprehension, speaking, reading, writing.

SMLI 1222. Beginning Somali II. (; 5 cr. ; A-F only; Every Fall, Spring & Summer)
Comprehension, speaking, reading, writing. prereq: 1221

SMLI 1225. Accelerated Beginning Somali I. (; 5 cr. ; A-F only; Every Fall & Spring)
Review of grammar/usage, practice in reading/ writing. Introduction to Somali literature and formal writing. Topics in Somali culture. prereq: Ability in basic spoken Somali

SMLI 1226. Accelerated Beginning Somali II. (; 5 cr. ; A-F only; Every Fall & Spring)
Review of grammar/usages, practice in reading/writing. Introduction to Somali literature and formal writing. Topics in Somali culture. prereq: 1225 or instr consent

SMLI 3227. Intermediate Somali I. (; 5 cr. ; A-F only; Every Fall)
Intermediate level Somali language for undergraduate students. prereq: instr consent

SMLI 3228. Intermediate Somali II. (; 5 cr. ; Student Option; Every Spring)
Intermediate Somali language for undergraduate students.

SMLI 4227. Intermediate Somali for Graduate Research I. (5 cr. ; A-F only; Every Fall)
Intermediate Somali language for graduate students.

SMLI 4228. Intermediate Somali for Graduate Research II. (; 5 cr. ; A-F only; Every Spring)
Intermediate Somali II for graduate students.

Spanish (SPAN)

SPAN 1001. Beginning Spanish. (; 5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing. Emphasizes development of communicative competence. Cultural readings. Prereq: Less than 2 yrs of high school Spanish and dept consent

SPAN 1002. Beginning Spanish. (; 5 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
Listening, speaking, reading, writing. Emphasizes development of communicative competence. Cultural readings. prereq: A grade of C- or better in SPAN 1001 completed at UMNTC, and dept consent

SPAN 1003. Intermediate Spanish. (5 cr. ; Student Option; Every Fall, Spring & Summer)
Speaking/comprehension. Developing reading/writing skills based on materials from Spain/Spanish America. Grammar review. Compositions, oral presentations. prereq: [1002 or 1022] or EPT placement

SPAN 1004. Intermediate Spanish. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Speaking/comprehension. Developing reading/writing skills based on materials from Spain/Spanish America. Grammar review. Compositions, oral presentations. prereq: 1003 or EPT placement

SPAN 1014. Business Spanish. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Vocabulary, report writing skills. Proper format for business communications. Conversational fluency on trade-related topics. prereq: 1003

SPAN 1022. Alternate Second-Semester Spanish. (5 cr. ; Student Option; Every Fall & Spring)
For students who have studied Spanish in high school or at community college, or who are transfer students. Begins with accelerated review of 1001 followed by material covered in 1002. prereq: Placement above 1001

SPAN 1044. Intermediate Medical Spanish. (5 cr. ; Student Option; Every Fall & Spring)
Language needed by health-care workers who interact with Spanish-speaking patients. Basic medical vocabulary, questions/answers in common medical situations. Vocabulary/ phrases to conduct patient interviews and physical exams. Readings on Latin American view of health and health care. prereq: 1003 or equiv

SPAN 3011W. Spanish Grammar and Composition Workshop. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Real-world writing, speaking, reading. Writing summaries of lectures by native speakers. Two papers. Reader's journals. Oral presentation. Grammar review. Audio exercises, paired/ small-group work. Discussions. Peer editing. Process writing. prereq: [1004 or 1014 or 1044], LPE pass

SPAN 3015V. Honors: Spanish Composition and Communication. (WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Comprehension of written/spoken text. Speaking/reading/ writing. prereq: SPAN LPE pass, Honors student

SPAN 3015W. Spanish Composition and Communication. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Comprehending written/spoken texts. Speaking, reading, writing beyond intermediate level. prereq: SPAN LPE pass

SPAN 3019W. Composition and Communication for Spanish Speakers of the U.S. (WI; 4 cr. ; Student Option; Every Fall)
Students in this course will further develop the main linguistic skills taught in the foundational SPAN 1001-1004 sequence, modified

appropriately for students born and/or raised in the US and who speak/spoke Spanish in the home. These students may or may not have received formal education in Spanish. Instruction will target the linguistic forms and rhetorical organization necessary for the genres of narration, exposition, and comparison-contrast while exploring cultural texts. Through guided activities, students will identify their linguistic and communicative strengths and weaknesses and also steps that they can take to advance in their language development. This course may be used as a substitute for SPAN 3015W or SPAN 3011W, but cannot be used for both. prereq: Instructor consent (recommended SPAN 1004 Pass or SPAN LPE Pass)

SPAN 3022. Advanced Business Spanish. (; 4 cr. ; Student Option; Every Spring)
Major issues of culture in relation to business in context of Spanish-speaking world. Important historical-social factors that contribute to understanding of economy/business relationships with industrialized nations. prereq: A C- or better in SPAN 3015W or SPAN 3015V or SPAN 3019W or TLDO 3231 or ECDR 3015W or ARGN 3015W

SPAN 3044. Advanced Medical Spanish. (4 cr. ; Student Option; Every Fall & Spring)
How to communicate more effectively in linguistic/cultural terms with Spanish speaking patients. Advanced/specific medical vocabulary, communication strategies, and related cultural aspects. Conducting patient interviews/medical history. Using vocabulary/ conversation to conduct physical exams. Latin American views on health/health care. prereq: a grade of C- or better in SPAN 3015W or 3015V

SPAN 3104V. Honors: Introduction to the Study of Hispanic Literatures. (LITR,WI; 3 cr. ; A-F only; Periodic Fall & Spring)
Structures, meaning, and social/historical function of diverse literary texts. prereq: 3015, Spanish [major or minor]or Span-Port major

SPAN 3104W. Introduction to the Study of Hispanic Literatures. (LITR,WI; 3 cr. ; Student Option; Every Fall & Spring)
This course will introduce the principal literary genres--narrative prose, poetry, and theater? and the methods used to study literary art produced in a Hispanic context across the centuries. Structures, meaning, and social/ historical function of diverse literary texts. Prereq: a grade of C- or better in SPAN 3015W or 3015V or 3019W

SPAN 3105V. Honors: Introduction to the Study of Hispanic Cultures. (WI; 3 cr. ; A-F only; Periodic Fall & Spring)
Span 3105V is a writing-intensive course centered on major issues of culture in the context of the Spanish-speaking world. It is not a history of civilization, nor is it a survey of either Latin American or Peninsular literature. Rather, our objective here is to familiarize ourselves with the different issues central to the development of the Hispanic world as a cultural entity, and to practice analyzing and questioning received notions of culture in this context. We will examine all sorts of texts--literary, visual, musical, and filmic--from all periods of both Latin American (including Brazil) and Peninsular history, reading them through the lens of a series of topics. These topics are as follows: Mapas del mundo hisp?nico/Maps of the Hispanic world, Pol?tica y legado del encuentro cultural/Politics and legacies of cultural encounter, Discursos de identidad social/Discourses of social identity, Coerci?n y subversion/Coercion and subversion, Las naciones modernas/Modern nations, and Cultura ?lite-cultura popular-cultura de masas/High culture-popular culture-mass culture.

SPAN 3105W. Introduction to the Study of Hispanic Cultures. (WI; 3 cr. ; Student Option; Every Fall & Spring)
This course familiarizes students with different issues central to the development of the Hispanic world as a cultural entity, and to practice analyzing and questioning received notions of culture in this context. Cultural issues pertaining to Spain or Spanish America. prereq: a grade of C- or better in SPAN 3015W or 3015V or 3019W

SPAN 3107W. Introduction to the Study of Hispanic Linguistics. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Structure of Spanish. Phonetics, phonology, morphology, syntax, pragmatics, language acquisition, language/gender, sociolinguistics. History of Spanish. prereq: a grade of C- or better in SPAN 3015W or 3015V or 3019W

SPAN 3211. Interpreting Imperial Spain, 1492-1800. (3 cr. ; Student Option; Every Fall)
Novels, places, poems, aphorisms, emblems, letters, and political treatises. Questions of ethnicity, gender, class, colonization, early mass culture, and subjectivity. prereq: A C- or better in SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V

SPAN 3221. Interpreting Colonial Latin America: Empire and Early Modernity. (3 cr. ; Student Option; Periodic Fall)
Conquest, colonization, and forms of resistance in Latin America. prereq: A C- or better in SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V

SPAN 3222. Interpreting Modern and Contemporary Latin America. (3 cr. ; Student Option; Every Spring)
Late modern and contemporary discourses in literature, popular culture, mass media, and film. prereq: A C- or better in SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V

SPAN 3301. Advanced Oral Proficiency Workshop. (3 cr. ; A-F only; Periodic Fall & Spring)
The main goal of this course is to advance students' oral proficiency in Spanish in a variety of genres of spoken discourse, including description, narration, argumentation, explanation, and hypothesizing. In addition, instruction will focus on developing the range of topics about which students can speak and the internal organization of discourse produced by students. These functions are characteristic of speakers at the advanced level of proficiency on the ACTFL scale. Students will engage in a variety of activities, among which are discussions, debates, oral presentations, and analysis of oral speech samples. Prereqs: Span 3104W, or 3105W, or 3107W AND Span 3211, or 3212, or 3221, or 3222, or 3502, or 3503, or 3510, or 3512, or 3701, or 3702, or 3703, or 3704, or 3706, or 3707, or 3730, or 3800, or 3910, or 3920, and oral interview required.

SPAN 3401. Latino Immigration and Community Engagement. (CIV; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Students analyze US power structures associated with emigration from Latin America and issues confronting societies with a rapid demographic change such as has been the case with Latino immigration in the U.S. Students have many opportunities to engage in dialogue with Latino immigrants. Topics include: the relationship between the global economic system and emigration from Latin America, human rights along the U.S./Mexican border, and US federal immigration policies. 33 hours of volunteer work outside of class required in the Latino immigrant community. Prerequisite: ARGN 3015W or ECDR 3015W or SPAN 3015 or SPAN 3015W or SPAN 3015V or TLDO 3231 or VENZ 3015

SPAN 3403. Latino Immigration on US/ Mexican Border. (CIV; 3 cr. ; Student Option; Periodic Summer)
This course takes place off campus, through an organization called "Border Links" that is located in Tucson and works with migrants. Students will experience firsthand many issues that directly affect the migrant journey and meet with many immigrants to hear their personal stories. In addition to learning the history of the situation on the border, students will take a tour of the border wall, visit neighboring communities that work with immigrants, do a legal immigration simulation, walk the migrant trails in the Sonoran Desert and leave water there with Humane Borders, go to a Operation Streamline Deportation Court hearing, visit migrants seeking political asylum in Florence Detention Center, talk with a leader in Southside Workers Center, meet with an author focusing on Border Patrol, and more. Themes explored in this course include the connection between the roots of emigration and the global economy of violence in Central America; human rights on the border; and issues immigrants face in the US such as immigrants living in the US with or without legal documents, detention and deportation and the work they are doing to make a more just immigration system. Students will gather information during their stay and create a presentation to be shown to people in Minnesota upon returning from the border.

SPAN 3404. Medical Spanish and Community Health Learning. (; 3 cr. ; Student Option No Audit; Every Fall & Spring)

Medical Spanish and Community Health Service an advanced language and culture course is designed to train Spanish Studies majors/ minors to work with materials to achieve effective communication with Spanish-speaking patients. In addition, Span 3404 has a service-learning component in which students apply academic knowledge to work done with community health care partners that work with the Latin American immigrant population at Minnesota. It should be noted that students in Span 3404 will not be involved in direct patient health care. prereq: SPAN 3015W with grade of at least C- or better and instructor permission. Recommended one additional upper division Spanish class.

SPAN 3502. Modern Spain. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Spanish culture, from beginning of 19th century to present. Cultural change and its conflicts as represented in Spanish art, literature, film, and diverse political developments. prereq: A Grade of C- or better in SPAN 3104W or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W

SPAN 3503. Pre-modern Spanish Culture and Thought. (HIS; 3 cr. ; Student Option; Periodic Fall & Spring)
Notions of nation, empire, and race precipitated by presence of Muslims, Jews, and Christians in Iberia in 12th and 13th centuries. Toledo as center of translation, technology, innovation, design, and philosophical inquiry for all of Europe. How Iberian literary works differed from those produced in the rest of Western Europe. Readings from Saint Isidore, Ibn Hazm, Averroes (Ibn Rushd), and Maimonides. prereq: A Grade of C- or better in SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V

SPAN 3510. Issues in Hispanic Cultures. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Analysis of practices that have shaped cultural identity of Spanish or Portuguese-speaking areas. Topics vary. prereq: A grade of C- or better in Span 3104W or Span 3105W or Tldo 3104 or Tldo 3105 or Venz 3104 or Venz 3512 or Argn 3104W or Span 3104v or Span 3105v

SPAN 3512. Modern Latin America. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Impact of various forms of modernization on cultural production in Latin American racial, ethnic, class relations, institutional, and ideological structures. prereq: A C- or better in SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V

SPAN 3606. Human Rights Issues in the Americas. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Human rights movement. International law of human rights and the justice system. Focuses on human rights cases in the Americas and on cultural practices related to human rights.

SPAN 3612. Don Quijote and the Novel. (LITR; 3 cr. ; Student Option; Spring Even Year)
How Cervantes' text enters in dialogue with prevalent novelistic and social discourses of Spain's Renaissance and Baroque periods (sixteenth/seventeenth century). How novel has managed to interest succeeding generations of readers. Taught in English.

SPAN 3653. Latinx Cultural Narratives in the US. (DSJ; 3 cr. ; Student Option; Periodic Fall)
A wide variety of Latino groups have used the stage to explore identity issues in a public forum and have developed nontraditional approaches which have altered the nature, quality and substance of recent theater in the U.S. Off-Broadway, regional troupes, and groups and have attempted to break the mainstream theater's hegemony by addressing the audience's desire to see their problems enacted in understandable and creative terms. Through an interdisciplinary approach which will include lectures, discussions, performance and visual materials, the course will introduce established and work-in-progress plays of the most active Latin (0) playwrights in the country, along with the historical, political and cultural development framework which made it possible. THIS CLASS IS TAUGHT IN ENGLISH

SPAN 3699. Study of Advanced Spanish Language Abroad. (; 1-5 cr. ; Student Option; Every Fall & Spring)
Study of advanced Spanish language in a Spanish-speaking country. prereq: Two yrs college-level Spanish, dept consent

SPAN 3701. Structure of Spanish: Phonology and Phonetics. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Analysis of phonetics/phonology of modern Spanish. Regional/social variants of the language in Spain and Spanish America. Emphasizes improving Spanish pronunciation. prereq: A C- or better in Span 3107W or TLDO 3107W

SPAN 3702. Structure of Spanish: Morphology and Syntax. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Using linguistic concepts such as morpheme, flexional affix, noun phrase, subject, subordination, and coordination to identify different morphological/syntactic components of Spanish. prereq: A C- or better in SPAN 3107W or TLDO 3107W

SPAN 3703. Origins and History of Spanish and Portuguese. (; 3 cr. ; Student Option; Every Fall & Spring)
Development of Spanish from its Latin roots. Phonetic, morphological, syntactic, and sociolinguistic aspects of language variations over time. prereq: A Grade of C- or better in Span 3107W or TLDO 3107W

SPAN 3704. Sociolinguistics of the Spanish-Speaking World. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Spanish dialects. Spanish in contact with other languages. Bilingualism, language attitudes. Pragmatic analysis of Spanish. Impact of recent cultural, political, and socioeconomic transformations on language. prereq: A C- or better in Span 3107W or TLDO 3107W

SPAN 3706. Spanish Applied Linguistics. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Introduction to second language acquisition processes as they relate to fundamental analysis of linguistic concepts of Spanish. Features that present difficulties for English speakers. Sociolinguistic aspects of language learning. Application to Spanish language teaching. prereq: A C- or better in Span 3107W or TLDO 3107W

SPAN 3707. Linguistic Accuracy Through Translation. (; 3 cr. ; A-F only; Periodic Summer)
Analysis of style/audience/lexicon of various texts in Spanish (popular press, business, academic) examined as framework for training to communicate with accuracy in different contexts. Students apply lexical/grammatical choices in translating texts. prereq: SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V or VENZ 3512 or 3107W instr consent

SPAN 3708. Spanish in the United States. (3 cr. ; Student Option; Periodic Spring)
Sociolinguistic overview of Spanish-speaking communities in the US; language use patterns in bilingual communities; linguistic characteristics of Spanish in the US; use of Spanish in schools and public life; language ideologies. prereq: A C- or better in SPAN 3107W or TLDO 3107W

SPAN 3730. Topics in Hispanic Linguistics. (; 3 cr. [max 9 cr.] ; A-F only; Periodic Fall & Spring)
Topics specified in Class Schedule. prereq: SPAN 3107W or TLDO 3107W or VENZ 3107 or instr consent

SPAN 3800. Film Studies in Spanish. (; 3 cr. [max 9 cr.] ; A-F only; Every Fall & Spring)
Films from Spain or Spanish-speaking world in their historical, (geo)political, and socioeconomic contexts. Films analyzed under interdisciplinary frameworks, noting aspects related to cinematography/rhetoric. prereq: Span 3104W or Span 3105W or Tldo 3104 or Tldo 3105 or Venz 3104 or Venz 3512 or Argn 3104W or Span 3104v or Span 3105v

SPAN 3807. Medical Humanities and Latin American Film: Narratives of Health, Illness & Trauma. (AH; 3 cr. ; Student Option; Periodic Fall & Spring)
In this course, we will study the representations of health, illness, and trauma in Latin American films. We will focus on the different ways in which the moving image account for different stories and perspectives. We will pay particular attention to the use of the camera in relation to the stories told by the different characters of the film, in particular, doctors and health workers, patients and their families. We will focus on the process of storytelling of illness and trauma, and on the essential role that the study of cultural and socio-political frameworks have in the study of narratives. Our objective will be to explore the visual, acoustic and narrative strategies through which pain, illness, trauma, and death are represented, as well as the role of those who listen to these narratives

(friends, family, health professionals and, of course, ourselves as spectators) in the process of interpretation (and the cultural aspects of interpretation). In this course, students will reflect on the human condition, and in the use of storytelling to understand and communicate one?s life story, focusing on the moments in which that the experience of illness or trauma interrupts and transforms a life story. Students will work in groups to create narratives based on the films studied in class and to analyze films (and their own narratives) with critical approaches coming from, visual and acoustic studies, philosophy, literary studies, and narrative medicine. prereq: SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V or instr consent

SPAN 3910. Topics in Spanish Peninsular Literature. (; 3 cr. [max 9 cr.] ; A-F or Audit; Periodic Fall & Spring)
Focus on central theme related to important groups of writers, literary movements, trends, critical approaches, methods. Topics specified in Class Schedule. prereq: SPAN 3104W or SPAN 3104V or TLDO 3104W or ARGN 3104W or SPAN 3105W or TLDO 3105W or SPAN 3105V or VENZ 3512 or instr consent

SPAN 3920. Topics in Spanish-American Literature. (; 3 cr. [max 9 cr.] ; A-F or Audit; Periodic Fall & Spring)
Focus on central theme related to important groups of writers, literary movements, trends, critical approaches, and methods. Topics specified in Class Schedule. prereq: SPAN 3104W or TLDO 3104 or VENZ 3104 or ARGN 3104W or SPAN 3105W or TLDO 3105 or VENZ 3512 or instructor consent

SPAN 3970. Directed Studies. (1-4 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading/study in Hispanic linguistics, cultural studies, or peninsular, Latin American, or U.S. Latino theater or literatures. Prereq instr consent, dept consent, college consent.

SPAN 3972W. Graduation Seminar. (WI; 3 cr. ; A-F only; Every Spring)
Completion of a research paper on cultural, literary, or artistic issue in Spanish or Portuguese speaking worlds or on a topic related to Hispanic linguistics. In-depth research/consultation with instructor. SPAN 3972W needs to be taken during the semester in which student completes major course work. prereq: Spanish Studies Major (for those who declared before Fall 2018): C- or better in SPAN 3015w, 3104w, 3105w, 3107w and 3 SPAN electives with a critical analysis prerequisite. Spanish Studies major (for those who declare Fall 2018 and after): C- or better in Span 3015w, 2 Span 31xx courses, and 4 electives with a Critical Analysis prerequisite. Spanish/Portuguese Studies Majors: C- or better in SPAN 3015w, PORT 3003, SPAN 3104w, 3107w, 1 PORT 35xx class, 2 upper level SPAN or PORT electives.

SPAN 4001. Beginning Spanish for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall)
Listening, speaking, reading, writing. Emphasizes development of communicative competence. Cultural readings. Prereq: Less than 2 yrs of High School Spanish, and dept consent

SPAN 4002. Beginning Spanish for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Spring)
Listening, speaking, reading, writing. Emphasizes development of communicative competence. Cultural readings. Meets concurrently with 1002. Prereqs: A Grade of C- or better in SPAN 1001/4001 completed at UMNTC and department consent

SPAN 4003. Intermediate Spanish for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall, Spring & Summer)
Speaking/comprehension. Developing reading/writing skills based on materials from Spain/Spanish America. Grammar review. Compositions, oral presentations. Meets concurrently with 1003. Prereq: A Grade of C- or better in SPAN 1002 or SPAN 4002 or SPAN 1022 or SPAN 4022 or EPT placement of SPAN 1003

SPAN 4004. Intermediate Spanish for Graduate Student Research. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
Speaking/comprehension. Developing reading/writing skills based on materials from Spain/Spanish America. Grammar review. Compositions, oral presentations. Meets concurrently with 1004.

SPAN 4014. Business Spanish for Graduate Student Research. (5 cr. ; Student Option; Every Spring)
Vocabulary, report writing skills. Proper format for business communications. Conversational fluency on trade-related topics. Meets with SPAN 1014.

SPAN 4022. Alternate Second-Semester Spanish for Graduate Student Research. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
For students who have studied Spanish in high school or at community college, or who are transfer students. Begins with accelerated review of 1001/4001 followed by material covered in 1002/4002. Meets concurrently with 1022.

SPAN 5110. Discursive Formations at the Threshold of 20th-Century Spain. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Theory and representative examples of the realist/naturalist novel (Galdas, Pardo Bazan) in the context of its antecedents ("costumbrismo"), opposites (the idealist/ sentimental novel), and turn-of-the-century innovations of modernism and the "generation of 1898." prereq: Grad student or instr consent

SPAN 5150. Contemporary Spanish Literature. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Major literary works/movements in Spain from 1915 to 2000. Neomodernism, surrealism, social realism, literatures of dictatorship/exile. Postmodernism. Poetry, novel, drama, essays, film, video/TV. Problems of literary history. prereq: Grad student or instr consent

SPAN 5160. Medieval Iberian Literatures and Cultures. (; 3 cr. ; Student Option; Periodic Fall & Spring)
The major literary genres developed in Spain from the Reconquest to 1502, with reference to the crucial transformations of the Middle Ages, including primitive lyric, epic, clerical narrative, storytelling, debates, collections, chronicles, "exempla," and the Celestina (1499-1502).

SPAN 5170. The Literature of the Spanish Empire and Its Decline. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Major Renaissance/Baroque works of Spanish Golden Age (16th-17th-century poetry, nonfiction prose, novel, drama) examined against historical background of internal economic decline, national crisis, ideological apparatus developed by modern state. prereq: Grad student or instr consent

SPAN 5180. Don Quixote. (; 3 cr. ; Student Option; Periodic Spring)
Analysis of Cervantes' [Don Quixote] in its sociohistorical context; focus on the novel's reception from the romantic period to postmodern times. prereq: Grad student or instr consent

SPAN 5190. The Crisis of the Old Regime: Spanish Literature of the Enlightenment and Romanticism. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Major literary works/intellectual movements/ conflicts represented in written culture, of 18th/ early 19th centuries (1680-1845), examined as expressions of long crisis of Spain's Old Regime and rise of bourgeois liberalism. prereq: Grad student or instr consent

SPAN 5316. Spanish Picaresque Narratives. (; 3 cr. ; Student Option; Periodic Fall)
Literary autobiography, residual elements of Erasmian humanism, post-Tridentine repression/censorship. Picaro's critique of imperial Spain's system of values/authority. Cultural critics' challenge to rediscover popular texts of early modern period. prereq: Grad student or instr consent

SPAN 5531. Hispanic Literature of the United States. (; 3 cr. ; Student Option; Periodic Fall)
Interdisciplinary approach providing a framework for deconstructing issues of national identity, marginalization, and gender. U.S. Hispanic theatre/literature and its ethnic diversity, regional variations, cultural links, and scope of its genres. prereq: Grad student or instr consent

SPAN 5550. Caribbean Literature: An Integral Approach. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Literature of Spanish-speaking Caribbean. Emphasizes historical legacy of slavery, African culture, independence struggles. prereq: Grad student or instr consent

SPAN 5560. Global Colonial Studies in the Hispanic World. (; 3 cr. ; Student Option; Periodic Fall & Summer)

Discourse production in Spanish America between 1492 and 1700. Conquest/colonial writing/counter writing. Historical origin, evolution, impact of cultural, political, socioeconomic factors. prereq: Grad student or instr consent

SPAN 5570. Nineteenth Century Latin America: Enlightened Thought, Nation Building, Literacy, Cultural Discourse. (; 3 cr. ; Student Option; Periodic Spring)
Political/economic contexts. Capitalism, liberalism, conservatism, their discursive media. Essay, journalism, literature, expression of everyday life. Wheels of commerce, progress, industrialization. Romanticism, realism, positivistic faith.

SPAN 5580. Latin American Cultural Integration in the Neocolonial Order. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Modernismo, historical vanguard, impact of populist politics in patterns of culture/literature. 1900-50. prereq: Grad student or instr consent

SPAN 5590. The Impact of Globalization in Latin American Discourses. (; 3 cr. ; Student Option; Every Fall & Spring)
Second half of 20th century critical culture. Neo-indigenism, new novel, poetry/antipoetry, theater/drama. Pragmatic search for past/identity. Globalization, its impact in literature.

SPAN 5701. History of Ibero-Romance. (; 3 cr. ; Student Option; Periodic Spring)
Origins and developments of Ibero-Romance languages; evolution of Spanish, Portuguese, and Catalan. prereq: Grad student or instr consent

SPAN 5711. The Structure of Modern Spanish: Phonology. (; 3 cr. ; Student Option; Periodic Fall)
Formulating and evaluating a phonological description of Spanish. Approaches to problems in Spanish phonology within metrical, autosegmental, and lexical phonological theories. prereq: Grad student or instr consent

SPAN 5714. Theoretical Foundations of Spanish Syntax. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Linguistic types/processes that appear across languages. Grammatical relations, word order, transitivity, subordination, information structure, grammaticalization. How these are present in syntax of Spanish. prereq: Grad student or instr consent

SPAN 5715. The Structure of Modern Spanish: Semantics. (; 3 cr. ; Student Option; Periodic Fall)
Applying semantic theory to Spanish: conceptual organization and the structuring of experience; meaning and cultural values; semantic fields; categorization and prototypes; cognitive model theory; metaphor, metonymy, and mental imagery as source and change of meaning. prereq: Grad student or instr consent

SPAN 5716. Structure of Modern Spanish: Pragmatics. (3 cr. ; Student Option; Periodic Fall)
Concepts in current literature in Spanish pragmatics. Deixis, presupposition, conversational implicature, speech act theory, conversational structure. prereq: Grad student or instr consent

SPAN 5717. Spanish Sociolinguistics. (; 3 cr. ; Student Option; Periodic Spring)
Sociolinguistic variation, cross-dialectal diversity in different varieties of Spanish in Latin America and Spain. Impact of recent cultural, political, and socioeconomic transformations on language. prereq: Grad student or instr consent

SPAN 5718. Spanish Language Contact. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Analysis of different types/results of Spanish language contact globally, taking into account varying social conditions under which contact occurs. prereq: Grad student or instr consent

SPAN 5721. Spanish Laboratory Phonology. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Core literature on Spanish laboratory phonology. Phonology from a laboratory perspective. Students evaluate laboratory research methodologies, perform basic acoustic analyses, and design laboratory phonology studies. prereq: Grad student or instr consent

SPAN 5910. Topics in Spanish Peninsular Studies. (; 3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Crucial moment or characters, works, or events marking beginning of new phase in literary/cultural landscape. prereq: Grad student or instr consent

SPAN 5920. Topics in Spanish-American Studies. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall, Spring & Summer)
Spanish-American literature analyzed according to important groups, movements, trends, methods, and genres. Specific approaches depend on topic and instructor. Topics specified in Class Schedule. prereq: Grad student or instr consent

SPAN 5930. Topics in Ibero-Romance Linguistics. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Spring & Summer)
Problems in Hispanic linguistics; a variety of approaches and methods.

SPAN 5970. Directed Readings. (1-4 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Students must submit reading plans for particular topics, figures, periods, or issues. Readings in Spanish and/or Spanish-American subjects. Prereq Grad student or instr consent.

SPAN 5985. Sociolinguistic Perspectives on Spanish in the United States. (; 3 cr. ; Student Option; Periodic Spring)
Sociolinguistic analysis of issues such as language maintenance/shift in U.S. Latino communities, code switching, attitudes of Spanish speakers toward varieties of Spanish and English, language change in bilingual communities, and language policy issues. prereq: Grad student or instr consent

SPAN 5990. Directed Research. (1-4 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed research. Prereq Grad student or instr consent.

SPAN 5991. The Acquisition of Spanish as a First and Second Language. (; 3 cr. ; Student Option; Periodic Spring)
Analysis of issues such as the acquisition of Spanish and English by bilingual children; Spanish in immersion settings; developmental sequences in Spanish; classroom language learners' attitudes, beliefs, and motivation; development of pragmatic competence. prereq: Grad student or instr consent

Spanish and Portuguese (SPPT)

SPPT 3600. Topics in Spanish and Portuguese Studies (Taught in English). (; 3 cr. ; Student Option; Periodic Fall & Spring)
Latin American, Iberian, or Lusophone topics related to culture, society, art, or linguistics. Taught in English.

SPPT 3601. 'Race' in Brazil & Latin America. (3 cr. ; Student Option; Periodic Fall & Spring)
As cultural, national and racial mixings have become the celebrated norm in our society, it is instructive to reflect upon the radically historical, contingent role that the idea of racial mixings has played in the construction of national imaginaries. The idea that Latin America is a continent of mestizos looms large in the US as elsewhere, but generally without the contextual understanding of how that racial category came to be, and as imaginaries of national mesti?agem/mestizaje were consolidated, developed and questioned in the twentieth century and, finally, transplanted to other geographical and epistemological sites, as is the case with Chicanx in the USA. Rather than contributing to the invisibility of Brazil by generalizing from Spanish-speaking Latin America, the present course aims to introduce students to racial thinking in Brazil, from the mid-nineteenth century to the present in a comparative frame with racial thinking elsewhere in Latin America, particularly in Mexico. Aside from understanding how the Spanish ?mestizo? construction is not equivalent to that of ?mesti?o? or ?pardo? or ?mulato? in Portuguese, nor to contemporary multicultural US-branded notions of racial mixings, the course aims to query how the imaginaries of nationhood that have prevailed in Latin America contribute not only to the social exclusion of black people, even where they are a majority, but also to the systematic racism that is still dominant and difficult to combat. We will go over the social and anthropological concepts, the literary and artistic representations, and the political uses of racial ascriptions with attention to changing historical contexts and locations. The main topics covered are the idea of the mixed-race nation in romanticism; post-emancipation, modern nation-making and whitening; modernism and the ideals of ?la raza c?smica? (Jos? Vasconcelos, in Mexico) and racial democracy (Gilberto Freyre, in Brazil); the problem of forging a black consciousness in an officially mixed-race nation; and the appropriation of a modernist, Mexican notion of ?mestizaje? to forge a Chicanx identity in the old one-drop rule USA. Classes will be conducted in English, but students have

the option to read some of the originals in Portuguese or Spanish; sometimes we will cite the originals in class to have students listen to ? and hopefully appreciate ? the sounds and nuances of Portuguese and Spanish. Classes will be interactive, with a combination of lecture and discussion; oral presentations, viewing of art, music and film clips and discussion thereof; and group activities. Depending on students? language abilities, small group discussions in class can be in Spanish, Portuguese or English. All texts are considered a valid object of study and discussion, in whatever language and from whatever disciplinary perspective they are written. I have deliberately mixed literature, anthropology, sociology, art history and so-called mass culture in order to expose students to a variety of disciplinary perspectives. The point is to see how insistent notions of ?race? are integrally related to the way that nations are imagined and controlled but also appropriated and potentially questioned.

SPPT 5930. Selected Topics in Hispanic and Lusophone Cultural Discourse. (; 1-3 cr. [max 9 cr.] ; A-F or Audit; Periodic Fall & Spring)
Cultural discourses in Spanish- and Portuguese-speaking areas. Historical intersections/divergences. Taught in Spanish or Portuguese, and in English when cross-listed. Topics specified in Class Schedule. prereq: Reading knowledge of Spanish and Portuguese

SPPT 5995. Directed Teaching. (1 cr. ; S-N only; Every Fall)
Taken in conjunction with SPPT 5999. Language acquisition theory as applied to foreign language instruction at college level. How current theory translates into practice through hands-on practical application particular to communicative language instruction practiced in Department of Spanish/ Portuguese Studies. prereq: Grad student with concurrent enrollment in 5999

SPPT 5999. The Teaching of College-Level Spanish: Theory and Practice. (; 3 cr. ; Student Option; Every Fall)
Theoretical grounding in the general principles of second language acquisition and guidance with their practical applications to the teaching of first- and second-year Spanish at the college-level. prereq: Grad or instr consent

Speech-Language-Hearing Sci (SLHS)

SLHS 1301V. The Physics and Biology of Spoken Language Honors. (PHYS,WI; 4 cr. ; A-F or Audit; Every Fall & Spring)
Physics/biology of spoken language, from talker's production of sounds/words, to transmission of sound, to listener's perception of what was said. Computer analysis/synthesis of speech.

SLHS 1301W. The Physics and Biology of Spoken Language. (PHYS,WI; 4 cr. ; Student Option; Every Fall & Spring)
Physics and biology of spoken language, from the talker's production of sounds and words, to the transmission of sound, to the listener's perception of what was said. Computer analysis and synthesis of speech.

SLHS 1302. Rate Your World: Quantifying Judgments of Human Behavior. (MATH; 3 cr. ; Student Option; Every Fall & Spring)
Methods for acquiring, summarizing, and analyzing judgments of human behavior. Measurement theory as it relates to ratings scales and physiological measures of behavior. Methods for summarizing and visualizing large sets of data, such as those used in research in the social sciences. Statistical analyses of data on human behavior. This course focuses strongly on using computational methods for analyzing and visualizing behavioral data using free open-course statistical software. Weekly laboratory sessions.

SLHS 1401. Communication Differences and Disorders. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to normal and disordered cognition and communication in regards to hearing, speech, and language in pediatric and adult populations. Specific focus on functional communication, assessment, and intervention as it relates to socially, culturally, and linguistically diverse populations.

SLHS 1402. The Talking Brain. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
How the brain produces/understands speech/ language, including various aspects of the nervous system involved in producing/ understanding speech/language. Differences in brain structure/function among individuals with and without brain injury, based on scientific versus historical, mass media and literature portrayals.

SLHS 1912. Music, Language and the Brain. (; 3 cr. ; A-F only; Periodic Fall)
Music and language are fascinating products of the human brain, which most uniquely define us as human beings. Every human culture has its own form of music and language with historical roots dated as early as about 40,000 years ago. Understanding music and language involves complex processes converting sound sequences into meaningful units and structures. This seminar compares music and language in all aspects of structure and use. We will highlight modern brain research studies on the associations and disassociations between music and language. We will also study how infants acquire their linguistic and emotional expressive power and how the early learning experience alters the brain, thereby affecting an individual?s future perceptions and actions. Both historical perspectives and current research including musical therapy for speech and language intervention will be introduced and discussed.

SLHS 3302. Anatomy and Physiology of the Speech and Hearing Mechanisms. (; 3 cr. ; Student Option; Every Fall)
Survey of anatomy and physiology of the auditory and speech production systems, including the nervous, respiratory, laryngeal, velopharyngeal and orofacial subsystems. Emphasis on normal processes and functions.

SLHS 3303. Language Acquisition and Science. (; 3 cr. ; Student Option; Every Spring)
Survey of typical language development, major theoretical perspectives about development, and analyses of children's language.

SLHS 3304. Phonetics. (3 cr. ; Student Option; Every Spring)
Phonetic transcription of speech produced by children and adults who speak a variety of the world's languages. Extensive practice with transcription. Phonetic theory, including theories of phonetic variation over the lifespan and across the world's languages. A strong emphasis on developing fluency in phonetic transcription, and on appreciating the limits of this skill. Introduction to socially meaningful phonetic variation.

SLHS 3305W. Speech Science. (WI; 3 cr. ; Student Option; Every Fall)
Survey of theories, methods, and research in speech science. Emphasis is on the acoustics of speech production and speech perception. Writing assignments focus on communicating theory and clinical aspects of speech communication to professional and to the lay public.

SLHS 3306. Hearing Science. (; 3 cr. ; Student Option; Every Spring)
Theories, methods, and research in psychological and physiological acoustics. Emphasizes relation between physiological measures and perception. Cochlear mechanics, auditory nerve firing patterns, scaling, and object perception. prereq: [3302, 3305W] or instr consent

SLHS 3401. Communication Differences and Disorders. (SOCS; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to normal and disordered cognition and communication in regards to hearing, speech, and language in pediatric and adult populations. Specific focus on functional communication, assessment, and intervention as it relates to socially, culturally, and linguistically diverse populations.

SLHS 3402V. Capstone Project in Speech-Language-Hearing Sciences Honors. (WI; 3 cr. [max 6 cr.] ; A-F only; Every Spring)
Seminar for completion of undergraduate major project. Emphasis on development of writing skills and service learning.

SLHS 3402W. Capstone Project in Speech-Language-Hearing Sciences. (WI; 3 cr. ; S-N or Audit; Every Spring)
Seminar for completion of undergraduate major project. Emphasis on development of writing skills and service learning.

SLHS 3555H. Honors Thesis. (; 1-2 cr. ; A-F or Audit; Every Fall & Spring)
Research/writing under direction of faculty member. Details of work are determined in consultation with faculty thesis adviser selected based on availability/topic. prereq: See dir of undergrad studies for [thesis adviser, forms]

SLHS 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)

An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student?s work is supervised and evaluated by a site coordinator or instructor.

SLHS 3994. Directed Research. (; 1-12 cr. [max 24 cr.] ; Student Option; Every Fall, Spring & Summer)
tbd prereq: Undergrad doing research

SLHS 4301. Introduction to the Neuroscience of Human Communication. (; 3 cr. ; Student Option; Periodic Fall)
Basic neuroanatomy and neurophysiology, especially as they relate to normal speech, language, and hearing processes.

SLHS 4402. Assessment and Treatment in Speech-Language Pathology. (3 cr. ; A-F or Audit; Every Fall)
Introduction to clinical methods and issues in communication disorders. Professional and legal mandates, collection and analysis of clinical data, principles and models of intervention with adults and children, and clinical reporting. prereq: [1401 OR 3401, 3302, 3303, 3304, 4301 (either before registration for 4402 or concurrent registration is required (or allowed) in 4402)], or grad student, or instr consent

SLHS 4801. Hearing Measurement and Disorders. (; 3 cr. ; Student Option; Every Fall)
Introduction to theory, administration, and interpretation of behavioral and physiological hearing tests for all age groups. Immittance, pure tone, speech, otoacoustic emissions, evoked potential measures. Hearing-screening protocols. prereq: [3302, 3305W] or instr consent

SLHS 4802. Rehabilitative Audiology. (; 3 cr. ; Student Option; Every Spring)
Survey of sensory aids and methods used in audiologic intervention across the life span after diagnosis of hearing loss. Impact of hearing loss, developmental level, communication modalities, client and family choice, disability and handicap, and linguistically and culturally diverse populations.

SLHS 5401. Counseling and Professional Issues. (; 3 cr. ; Student Option; Every Fall)
Basic counseling principles and current professional issues related to practice in a dynamic multicultural environment. Application of counseling theory to clinical practice. Analysis of regulation, practice, and future direction of communication disorders. prereq: [[concurrent registration is required (or allowed) in 8720 or concurrent registration is required (or allowed) in 8820], grad student] recommended

SLHS 5502. Voice and Cleft Palate. (3 cr. ; Student Option; Every Spring)
Disordered voice and resonance. Presentation and discussion of the nature of etiologies, assessment and management of organic/functional voice disorders and cleft palate to meet clinical competencies for speech-language pathology. prereq: [3305, 4301] or [CDis 3305, CDis 4301] or instr consent

SLHS 5503. Fluency and Motor Speech Disorders. (3 cr. ; Student Option; Every Fall)
Nature/management of stuttering and other motor speech disorders in adults/children. prereq: graduate SLHS student or department permission, [3305, 4301] or instr consent

SLHS 5504. Evaluation and Management of Dysphagia. (3 cr. ; Student Option; Every Fall)
Normal/disordered aspects of swallowing. Nature, etiologies, evaluation, management of swallowing disorders.

SLHS 5602. Speech Sound Disorders: Assessment and Treatment across Languages. (3 cr. ; Student Option; Every Fall)
Nature, assessment, and treatment of speech sound disorders in children. Assessment and treatment of phonological awareness and pre-literacy skills. This course covers cross-linguistic issues in speech sound disorders, including characteristics of speech sound disorders in a variety of languages, and the differential diagnosis of speech sound disorder from the effects of normal second-language acquisition. Emphasis on functional speech sound disorders, with some coverage given to disorders of a clear organic origin, like cerebral palsy, hearing impairment, and cleft palate. prereq: [3303, 3304, 4601] or instr consent

SLHS 5603. Assessment and Intervention of Language Disorders in Children. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Assessment and intervention techniques approaches for treating language impairment in children with disabilities, such as specific language impairment, developmental delays, and autism spectrum disorder. prereq: 3303 or CDis 3303 or equiv or grad student or instr consent

SLHS 5605. Language and Cognitive Disorders in Adults. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Acquired cognitive and communicative disorders in the adult population specifically including: stroke/aphasia, right hemisphere dysfunction, traumatic brain injury, and dementia. Consideration of neurological substrates, disorder symptomology, assessment, clinical intervention, and functional impact across the lifespan and amongst diverse populations. prereq: [3302, 4301] or [CDis 3302, CDis 4301] or instr consent

SLHS 5606. Introduction to Augmentative and Alternative Communication. (; 3 cr. ; Student Option; Every Fall & Spring)
Description of the range of augmentative and alternative communication applications for persons with developmental and acquired disabilities. Topics include assessment, intervention strategies, progress monitoring, generalization, and maintenance; collateral behavior resulting from AAC applications.

SLHS 5608. Clinical Issues in Bilingualism and Cultural Diversity. (; 3 cr. ; A-F only; Every Spring)
Topics in cultural diversity, bilingualism, and second language learning needed for clinical competency in speech-language pathology. Basic/applied issues across a broad range of culturally/linguistically diverse populations. prereq: 3303 or equiv or instr consent

SLHS 5609. Child Language Disorders in Diverse Populations. (3 cr. [max 6 cr.] ; Student Option; Every Spring)
This course covers topics across three broad areas of child language: cultural and linguistic diversity, early intervention, and social communication. The first section will address multicultural issues and bilingualism. The second section will focus on assessment and treatment of language disorders from birth through preschool. Finally, we will address the assessment and treatment of social communication and pragmatic language deficits across disorders and developmental levels, including early prelinguistic communication The course will include both theoretically and clinically motivated content.

SLHS 5801. Advanced Audiologic Assessment. (; 3 cr. ; Student Option; Every Fall)
Basic audiometric battery, including pure tone thresholds, measures of speech understanding, masking and immittance in adults. Topics include video ostoscopy, ototoxicity, functional hearing loss, and identification of middle-ear fluid. Students enrolled in this course concurrently enroll in SLHS 5810. prereq: 4801 or CDis 4801 or instr consent

SLHS 5802. Hearing Aids I. (; 3 cr. ; Student Option; Every Fall)
Survey of modern hearing aids including history of development, electroacoustic functions, clinic and laboratory measurement techniques, sound field acoustics, techniques for selection. prereq: [[3305, 4801] or [CDIS 3305, CDIS 4801], SLHS grad] or instr consent

SLHS 5803. Pediatric Audiology. (; 3 cr. ; Student Option; Every Fall)
Behavioral, physiological approaches to assessment and identification, development of the auditory mechanism, etiologies of hearing losses in infants, children, principles of case management with children and families. prereq: [[4801 or CDIS 4801], SLHS grad] or instr consent

SLHS 5804. Cochlear Implants. (; 3 cr. ; A-F or Audit; Periodic Spring)
Implantable auditory prostheses. History of device development, including cochlear implants and auditory brainstem implants. Signal processing. Techniques for selection, fitting, and rehabilitation. Behavioral/physiological changes across life span. prereq: [[4802, 5801, 5802] or [CDIS 4802, CDIS 5801, CDIS 5802], SLHS grad] or instr consent

SLHS 5805. Advanced Rehabilitative Audiology. (; 3 cr. ; A-F only; Periodic Spring)
Analysis of speech perception/production. Communication skills/strategies. Sensory modalities. Rehabilitative techniques in adults, children, and infants with hearing losses. Tinnitus management. Audiology telepractice.

SLHS 5806. Auditory Processing Disorders. (3 cr. ; A-F or Audit; Fall Even Year)
Normal and disordered auditory processing abilities. Anatomy and physiology of central auditory pathway, assessments to evaluate auditory processing skills, techniques to address auditory processing weaknesses. Current and historical theories and controversies surrounding auditory processing assessment. prereq: [4802 or CDIS 4802, SLHS grad] or instr consent

SLHS 5807. Noise and Hearing Conservation. (; 3 cr. ; A-F or Audit; Periodic Fall)
Formative assessment in hearing conservation. Auditory and nonauditory effects of noise on humans. Designing a hearing conservation program. Measuring noise levels. Monitoring hearing. Measuring hearing protection devices. Developing educational materials Describe federal and state regulations on hearing conservation. Students work in groups to measure noise in campus settings, perform real-ear assessment of hearing protectors, and develop and pilot-test educational materials on effects of noise on hearing. prereq: [8801, 8802] or [CDis 8801, CDis 8802]

SLHS 5808. Pathophysiology of Hearing Disorders. (; 3 cr. ; A-F or Audit; Summer Odd Year)
Disorders of auditory system, including anatomical, physiological, perceptual, and audiological manifestations of pathologies affecting hearing. Focus will be on understanding current data on physiology, pharmacology, and novel treatment alternatives prereq: [[8801, 8802] or [CDIS 8801, CDIS 8802], SLHS grad] or instr consent

SLHS 5810. Laboratory Module in Audiology. (; 1-2 cr. [max 10 cr.] ; A-F only; Every Fall & Spring)
Intensive study of clinical methods in audiology. Supplements didactic courses in audiology curriculum. Laboratory study, individually or in small groups. Students enroll in this course concurrently with SLHS 5801, 5802, 8801, 8802. prereq: [4801 or CDIS 4801, SLHS grad] or instr consent

SLHS 5820. Clinical Research and Practice: Grand Rounds. (; 1-6 cr. ; S-N or Audit; Every Fall & Spring)
Group discussions of current professional issues in audiology. Case presentations, guest presentations on current technology, clinical/research ethics. Group meets for an hour weekly with faculty coordinator who leads discussion. Integrates academic/clinical education. prereq: [[4801 or CDIS 4801 or equiv], SLHS grad] or instr consent

SLHS 5830. Clinical Foundations in Audiology. (; 1-8 cr. [max 24 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Clinical foundations in audiology for first year AuD graduate students. prereq: Grad SLHS major

SLHS 5900. Topic in Speech-Language-Hearing Sciences. (; 2 cr. [max 4 cr.] ; Student Option; Periodic Fall & Spring)
Topics listed in Speech-Language-Hearing Sciences office. prereq: SLHS grad student or instr consent

SLHS 5993. Directed Study. (; 1-12 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed readings and preparation of reports on selected topics. prereq: SLHS grad or instr consent

Sport Management (SMGT)

SMGT 1701. Introduction to Sport Management. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Scope/motive of the study of sport from sociological, psychological, historical, economic, and scientific perspective. Issues in sport.

SMGT 2751. Sport and Wellness in China. (3 cr. ; A-F only; Every Summer)
Course covers international and governing body selection of host market, economic impact of hosting a sport event, media, communications, working with athletes, marketing, event operations, host politics and culture. Students will also participate in wellness and rec as presented by our Chinese partners.

SMGT 3111. Sports Facility and Event Management. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
This course is designed to provide the student with knowledge pertaining to the various aspects of managing a sport facility and the events which take place within these facilities. Some of the topics discussed include operations, scheduling, marketing, ticketing, finance, sponsorship, risk, security, and event management. Students will have the opportunity to discuss and present viewpoints as it relates to the management of sport facilities and event management. In addition, students will have the opportunity to apply knowledge gained through lecture and in class exercises by viewing a sports event and critiquing various facility management functions during the event, and by developing a sports event management plan. prereq: SMGT major or SMGT minor or CEHD IDP or instructor consent and 45 credits completed or in progress.

SMGT 3143. Organization and Management of Sport. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
This course is designed to provide the student with knowledge pertaining to the various aspects of organization, management, and administration within the sport industry. Students will have the opportunity to hear, learn, and share viewpoints as they relate to sport management through lectures, discussions on current events, and case study analysis. prereq: SMGT major or SMGT minor or CEHD IDP or instructor consent, and 45 credits completed or in progress.

SMGT 3421. Business of Sport. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
This course is designed to provide students with an introduction to the business activity of the sports industry. Topics include sports and its business ecosystem, basic economic principles, revenue management, ticketing, sponsorships and other revenue sources, and expenditure management. prereq: SMGT or KIN or REC major or SMGT minor or CEHD IDP or instructor consent and 45 credits completed or in progress.

SMGT 3501. Sport in a Diverse Society. (DSJ,SOCS; 3 cr. ; A-F only; Every Fall & Spring)
Relationship between sport and contemporary social institutions. Groups/individuals who have historically been marginalized or excluded from sport participation. Race, sex, social class, sexual orientation, physical (dis)abilities.

SMGT 3501H. Sport in a Diverse Society: Honors. (DSJ,SOCS; 3 cr. ; A-F only; Every Fall & Spring)
Pervasive and significant relationships between social constructions of sport and physical activity to contemporary social institutions such as politics, religion, economics, education, and mass media. Social issues related to sport. How specific social categories (e.g., age, gender, race, social class) intersect to influence participation/experiences of individuals within sport/physical activity contexts. prereq: Honors student

SMGT 3601. Ethics and Values in Sport. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
In sport management we have many opportunities to ask questions regarding acts and decisions as right or wrong. What does it mean to act in a way that characterizes good behavior? How do we develop morally? What are our personal values and moral orientations? Does sport perpetuate violence in society? What is moral and ethical conduct in sport management? What is meant by the term social responsibility? Do professional sport team owners have a responsibility to the community? How do we make decisions that are good, right and authentic? These questions and other ethical issues in sport will be explored from historical, philosophical, and sociological perspectives. The process of critical reading, thinking, writing, and discussion will be emphasized. Thoughtful reflection and respectful dialogue are encouraged. Critical thinking is a learned process and two activities are central to this process: 1) identifying and challenging assumptions and 2) exploring and imagining alternatives (Brookfield, 1987). prereq: SMGT major and 60 credits completed or in progress.

SMGT 3631. Sport Marketing. (; 3 cr. ; A-F only; Every Fall & Spring)
This course provides an overview of sport marketing management in sport organizations. The most basic objectives of the course provide you with a broad introduction to

sport marketing concepts, the role of sport marketing in society, and the various factors that influence marketing decision making. Like other introductory survey courses, you will be exposed to and expected to learn the "language? of the industry (i.e., terms, concepts, and frameworks) used by practicing marketing professionals. However, it is also expected that by the end of the course you will have a solid understanding of the major decision areas under marketing, the basic interrelationships of those decision areas, and an appreciation of how to apply key frameworks and tools in analysis of customers, competition, and marketing strengths and weaknesses. With this combination, the course should help you develop insight about creative selection of target markets and blending decisions related to product, price, promotion, place, and PR (i.e., the marketing mix) to meet the needs of a target market. It is important that sport management students understand the vital role of marketing within the sport industry. Marketing may take several forms in sport businesses. Students must be able to differentiate between use of marketing to sell sport products and/or services (marketing of sport) from the use of sport and sport personality marketing to sell general or sport-related products or services (marketing through sport). These objectives can only be achieved through a joint effort. I will work to stimulate your interest and learning in these areas, but you will be expected to display initiative and a program of self-study. In that sense, a complementary objective of the course is to provide you with an environment that will encourage and reward your own intellectual effort, while simultaneously maintaining rigorous standards that identify those who are motivated to pursue excellence in their own educational preparation for a sport business career. prereq: SMGT Major or SMGT Minor, or instructor consent AND 45 credits completed or in progress.

SMGT 3632. Sport Sales and Fund-raising. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Foundation of revenue production in sport management. Necessary skills related to revenue production and sales processes as they apply to the business of sport. prereq: Sport Management major or minor or instr consent

SMGT 3741. Sustainability through Sport. (; 2 cr. ; A-F only; Periodic Summer)
With the growing globalization of sport and its influence on social and commercial activities worldwide, environmental sustainability has become a critical component of sport management strategy among socially responsible sport organizations. Sport organizations are increasingly seeking opportunities to be positive contributors to their communities with respect to reducing waste, improving energy efficiency, responsibly using land, developing and contributing to responsible supply chains, and conserving water and other natural resources. This course is designed to familiarize students with a wide-range of manners by which sport organizations are able to use their core competencies and elevated positions in their communities to deliver impactful sustainability programs

SMGT 3861. Sport and Recreation Law. (3 cr. ; A-F only; Every Fall & Spring)
This course is designed to acquaint the students to the US legal system, structure, process and terminology. The course provides an introduction of the legal aspects of contract law, tort law, statutory law, negligence, and constitutional law. A student upon completion of the course will understand basic legal aspects of sport and physical activity and will be able to provide managerial analysis and decision making based upon a legal aspects of sport knowledge, therefore providing a competitive advantage of the organization of which are involved. The course instruction relies heavily on court case studies and the legal implications in a sport setting. prereq: SMGT major or REC major or SMGT minor or Health and Wellness Promotion minor and 60 credits completed or in progress.

SMGT 3881W. Senior Seminar in Sport Management. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Presentations/discussions on sport-related topics of interest.

SMGT 3993. Directed Study in Sport Management. (; 1-3 cr. ; A-F only; Every Fall, Spring & Summer)
Students work with faculty and grad students on research, scholarly, or creative activities. Students assist with faculty scholarship or carry out projects under faculty supervision. prereq: Undergrad, instr consent

SMGT 3996. Practicum: The Sport Experience. (; 2-8 cr. ; S-N only; Every Fall, Spring & Summer)
Practical experience in one or more sport settings. prereq: 3881, SMGT major, instr consent

Statistics (STAT)

STAT 1001. Introduction to the Ideas of Statistics. (MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Graphical/numerical presentations of data. Judging the usefulness/reliability of results/ inferences from surveys and other studies to interesting populations. Coping with randomness/variation in an uncertain world. prereq: Mathematics requirement for admission to University

STAT 3011. Introduction to Statistical Analysis. (MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Standard statistical reasoning. Simple statistical methods. Social/physical sciences. Mathematical reasoning behind facts in daily news. Basic computing environment.

STAT 3021. Introduction to Probability and Statistics. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This is an introductory course in statistics whose primary objectives are to teach students the theory of elementary probability theory and an introduction to the elements of statistical inference, including testing, estimation, and confidence statements. prereq: Math 1272

STAT 3022. Data Analysis. (4 cr. ; Student Option; Every Fall & Spring)
Practical survey of applied statistical inference/computing covering widely used statistical tools. Multiple regression, variance analysis, experiment design, nonparametric methods, model checking/selection, variable transformation, categorical data analysis, logistic regression. prereq: 3011 or 3021 or SOC 3811

STAT 3032. Regression and Correlated Data. (4 cr. ; Student Option; Every Fall & Spring)
This is a second course in statistics with a focus on linear regression and correlated data. The intent of this course is to prepare statistics, economics and actuarial science students for statistical modeling needed in their discipline. The course covers the basic concepts of linear algebra and computing in R, simple linear regression, multiple linear regression, statistical inference, model diagnostics, transformations, model selection, model validation, and basics of time series and mixed models. Numerous datasets will be analyzed and interpreted using the open-source statistical software R. prereq: STAT 3011 or STAT 3021

STAT 3301. Regression and Statistical Computing. (4 cr. ; A-F only; Every Fall & Spring)
This is a second course in statistics for students that have completed a calculus-based introductory course. Students will learn to analyze data with the multiple linear regression model. This will include inference, diagnostics, validation, transformations, and model selection. Students will also design and perform Monte Carlo simulation studies to improve their understanding of statistical concepts like coverage probability, Type I error probability, and power. This will allow students to understand the impacts of model misspecification and the quality of approximate inference. prereqs: STAT 3021 and (CSCI 1113 or CSCI 1133)

STAT 3701. Introduction to Statistical Computing. (4 cr. ; A-F only; Every Fall & Spring)
Elementary Monte Carlo, simulation studies, elementary optimization, programming in R, and graphics in R. Prerequisites: (MATH 1272 or 1372 or 1572H), CSCI 1113, and STAT 3032

STAT 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other

employment settings and not simply to advance the operations of the employer. Typically the student's work is supervised and evaluated by a site coordinator or instructor.

STAT 4051. Applied Statistics I. (4 cr. ; A-F or Audit; Every Fall & Spring)
This is the first semester of the Applied Statistics sequence for majors seeking a BA or BS in statistics. The course introduces a wide variety of applied statistical methods, methodology for identifying types of problems and selecting appropriate methods for data analysis, to correctly interpret results, and to provide hands-on experience with real-life data analysis. The course covers basic concepts of single factor analysis of variance (ANOVA) with fixed and random effects, factorial designs, analysis of covariance (ANCOVA), repeated measures analysis with mixed effect models, principal component analysis (PCA) and multidimensional scaling, robust estimation and regression methods, and rank tests. Numerous datasets will be analyzed and interpreted, using the open-source statistical software R and Rstudio. prerequisites: (STAT 3701 or STAT 3301) and (STAT 4101 or STAT 5101 or MATH 5651)

STAT 4052. Introduction to Statistical Learning. (4 cr. ; A-F only; Every Fall & Spring)
This is the second semester of the core Applied Statistics sequence for majors seeking a BA or BS in statistics. Both Stat 4051 and Stat 4052 are required in the major. The course introduces a wide variety of applied statistical methods, methodology for identifying types of problems and selecting appropriate methods for data analysis, to correctly interpret results, and to provide hands-on experience with real-life data analysis. The course covers basic concepts of classification, both classical methods of linear classification rules as well as modern computer-intensive methods of classification trees, and the estimation of classification errors by splitting data into training and validation data sets; non-linear parametric regression; nonparametric regression including kernel estimates; categorical data analysis; logistic and Poisson regression; and adjustments for missing data. Numerous datasets will be analyzed and interpreted, using the open-source statistical software R and Rstudio. prerequisites: STAT 4051 and (STAT 4102 or STAT 5102)

STAT 4101. Theory of Statistics I. (; 4 cr. ; Student Option; Every Fall)
Random variables/distributions. Generating functions. Standard distribution families. Data summaries. Sampling distributions. Likelihood/ sufficiency. prereq: Math 1272 or Math 1372 or Math 1572H

STAT 4102. Theory of Statistics II. (; 4 cr. ; Student Option; Every Fall & Spring)
Estimation. Significance tests. Distribution free methods. Power. Application to regression and to analysis of variance/count data. prereq: 4101

STAT 4893W. Consultation and Communication for Statisticians. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course focuses on how to interact and collaborate as a statistician on a multidisciplinary team. Students will learn about all aspects of statistical consulting by performing an actual consultation. This includes: understanding the needs of the researcher, designing a study to investigate the client's needs, and communicating study results through graphs, writing, and oral presentations in a manner that a non-statistician can understand. Students will also discuss how to design research ethically (respecting the rights of the subjects in the research), how to analyze data without manipulating results, and how to properly cite and credit other people's work. Students will also be exposed to professional statisticians as a means of better understanding careers in statistics. prereq: Senior Statistics Major

STAT 5021. Statistical Analysis. (; 4 cr. ; Student Option; Every Fall & Spring)
Intensive introduction to statistical methods for graduate students needing statistics as a research technique. prereq: college algebra or instr consent; credit will not be granted if credit has been received for STAT 3011

STAT 5052. Statistical and Machine Learning. (3 cr. [max 4 cr.] ; A-F only; Every Fall)
This is a graduate level course in statistics for students that have completed at least one year of graduate courses in statistics. The material covered will be the foundations of modern machine learning methods including regularization methods, discriminant analysis, neural nets, random forest, bagging, boosting, support vector machine and clustering. Model comparison using cross-validation and bootstrap methods will be emphasized.

STAT 5101. Theory of Statistics I. (; 4 cr. ; Student Option; Every Fall)
Logical development of probability, basic issues in statistics. Probability spaces. Random variables, their distributions and expected values. Law of large numbers, central limit theorem, generating functions, multivariate normal distribution. prereq: (MATH 2263 or MATH 2374 or MATH 2573H), (CSCI 2033 or MATH 2373 or MATH 2243)

STAT 5102. Theory of Statistics II. (; 4 cr. ; Student Option; Every Fall & Spring)
Sampling, sufficiency, estimation, test of hypotheses, size/power. Categorical data. Contingency tables. Linear models. Decision theory. prereq: 5101 or Math 5651

STAT 5201. Sampling Methodology in Finite Populations. (; 3 cr. ; Student Option; Every Spring)
Simple random, systematic, stratified, unequal probability sampling. Ratio, model based estimation. Single stage, multistage, adaptive cluster sampling. Spatial sampling. prereq: 3022 or 3032 or 3301 or 4102 or 5021 or 5102 or instr consent

STAT 5302. Applied Regression Analysis. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Simple, multiple, and polynomial regression. Estimation, testing, prediction. Use of graphics in regression. Stepwise and other numerical methods. Weighted least squares, nonlinear models, response surfaces. Experimental research/applications. prereq: 3032 or 3022 or 4102 or 5021 or 5102 or instr consent Please note this course generally does not count in the Statistical Practice BA or Statistical Science BS degrees. Please consult with a department advisor with questions.

STAT 5303. Designing Experiments. (; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Analysis of variance. Multiple comparisons. Variance-stabilizing transformations. Contrasts. Construction/analysis of complete/incomplete block designs. Fractional factorial designs. Confounding split plots. Response surface design. prereq: 3022 or 3032 or 3301 or 4102 or 5021 or 5102 or instr consent

STAT 5401. Applied Multivariate Methods. (; 3 cr. ; Student Option; Periodic Fall)
Bivariate and multivariate distributions. Multivariate normal distributions. Analysis of multivariate linear models. Repeated measures, growth curve, and profile analysis. Canonical correlation analysis. Principal components and factor analysis. Discrimination, classification, and clustering. pre-req: STAT 3032 or 3301 or 3022 or 4102 or 5021 or 5102 or instr consent Although not a formal prerequisite of this course, students are encouraged to have familiarity with linear algebra prior to enrolling. Please consult with a department advisor with questions.

STAT 5421. Analysis of Categorical Data. (; 3 cr. ; Student Option; Every Fall & Spring)
Varieties of categorical data, cross-classifications, contingency tables. Tests for independence. Combining 2x2 tables. Multidimensional tables/loglinear models. Maximum-likelihood estimation. Tests for goodness of fit. Logistic regression. Generalized linear/multinomial-response models. prereq: STAT 3022 or 3032 or 3301 or 5302 or 4051 or 8051 or 5102 or 4102

STAT 5511. Time Series Analysis. (; 3 cr. ; Student Option; Every Fall)
Characteristics of time series. Stationarity. Second-order descriptions, time-domain representation, ARIMA/GARCH models. Frequency domain representation. Univariate/multivariate time series analysis. Periodograms, non parametric spectral estimation. State-space models. prereq: STAT 4102 or STAT 5102

STAT 5601. Nonparametric Methods. (; 3 cr. ; Student Option; Every Fall & Spring)
Order statistics. Classical rank-based procedures (e.g., Wilcoxon, Kruskal-Wallis). Goodness of fit. Topics may include smoothing, bootstrap, and generalized linear models. prereq: Stat classes 3032 or 3022 or 4102 or 5021 or 5102 or instr consent

STAT 5701. Statistical Computing. (3 cr. ; A-F or Audit; Every Fall)
Statistical programming, function writing, graphics using high-level statistical computing languages. Data management, parallel computing, version control, simulation studies, power calculations. Using optimization to

fit statistical models. Monte Carlo methods, reproducible research. prereq: (Stat 5102 or Stat 8102) and (Stat 5302 or STAT 8051) or consent

STAT 5731. Bayesian Astrostatistics. (4 cr. ; A-F only; Every Fall)
This course will introduce Bayesian methods for interpreting and analyzing large data sets from astrophysical experiments. These methods will be demonstrated using astrophysics real-world data sets and a focus on modern statistical software, such as R and python. Prerequisites: MATH 2263 and MATH 2243, or equivalent; or instructor consent Suggested: statistical course at the level of AST 4031, AST 5031, STAT 3021, or STAT 5021

STAT 5931. Topics in Statistics. (; 3 cr. ; Student Option; Periodic Fall)
Topics vary according to student needs and available staff.

STAT 5993. Tutorial. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed study in areas not covered by regular offerings. prereq: instr consent

Stem Cell Biology (SCB)

SCB 5051. Stem Cell Biology Practical Training Module. (1 cr. ; A-F only; Every Fall)
Intensive two-week course. Hands-on instruction in techniques of tissue culture. Conventional, fluorescence, and confocal microscopy. Flow cytometry for both analysis of cell populations and sorting of cells. prereq: Acceptance into stem cell biology master's program

SCB 5054. Stem Cell Institute Research Seminar and Journal Club. (; 2 cr. [max 6 cr.] ; A-F or Audit; Every Fall & Spring)
Students attend weekly Stem Cell Institute research seminars and journal clubs, write brief summaries, participate in journal club, and present original research paper. prereq: Acceptance into stem cell biology [master's prog or PhD minor prog] or instr consent

SCB 5900. Master's Plan B Research Paper and Presentation. (; 2 cr. ; A-F only; Every Fall, Spring & Summer)
Students write research paper based on primary literature on stem cell biology topic of interest, mentored by faculty member. prereq: Admission to stem cell biology master's plan B program

Studies in Cinema Media Cultur (SCMC)

SCMC 1201V. Honors Course: Cinema. (AH,WI; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the critical study of the visual in modernity, presented through sustained analysis of the cinema and cinematic codes. Emphases on formal film analysis and major film movements and conventions in the international history of cinema. Students develop a vocabulary for formal visual analysis and explore major theories of the cinema. *Students will not receive credit for SCMC 1201V if they have already taken CSCL 1201V, CSCL 1201W, SCMC 1201W, ARTH 1921W, CSCL 1921W, CSCL 1201 or SCMC 1201

SCMC 1201W. Cinema. (AH,WI; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the critical study of the visual in modernity, presented through sustained analysis of the cinema and cinematic codes. Emphases on formal film analysis and major film movements and conventions in the international history of cinema. Students develop a vocabulary for formal visual analysis and explore major theories of the cinema. *Students will not receive credit for CSCL 1201W if they have already taken SCMC 1201W, ARTH 1921W, CSCL 1921W, CSCL 1201 or SCMC 1201

SCMC 1202W. Media: Word, Image, Sound. (AH,WI,TS; 4 cr. ; Student Option; Every Fall & Spring)
Introduction to the critical and theoretical study of media and technology from Aristotle to the modern world. The first half of the course emphasizes theoretical readings in dialogue with historical apparatuses (printing press, photography, radio, cinema, television) and various expressive objects (the bible, early film, ethnographic sound recordings). The second half turns to the modern culture industry since World War II, and introduces students to the critical study of mass culture, the concept of ideology, and of the relationship between corporate power and media conglomerates.

SCMC 3001W. History of Cinema and Media Culture. (WI; 4 cr. ; Student Option; Every Fall)
Genealogy of cinema in relation to other media, notably photography, radio, television/video, and the Internet. Representative films from decisive moments in global development of cinema. Rise/fall of Hollywood studio system, establishment of different national cinemas, cinematic challenges to cultural imperialism, emergence of post-cinematic technologies.

SCMC 3201. Fundamentals of Digital Filmmaking. (; 4 cr. ; A-F only; Every Fall)
Practice of digital filmmaking. Digital techniques, practical tools required to produce films. Optical/digital devices as artistic tools. Historical/theoretical issues of cinema, its relation to other art forms.

SCMC 3202. Intermediate Digital Filmmaking. (; 4 cr. ; A-F only; Every Spring)
Students complete a film of any length, 24 frames or feature-length. Emphasizes formal analysis of frames, shots, sequences, and relations of unit (frame or shot) to whole. prereq: 3201 or instr consent

SCMC 3210. Cinema and Ideology. (AH; 4 cr. ; Student Option; Every Fall & Spring)
The cinema as a social institution with emphasis on the complex relations it maintains with the ideological practices that define both the form and the content of its products. Specific films used to study how mass culture contributes to the process of shaping beliefs and identities of citizens.

SCMC 3211. Global and Transnational Cinemas. (GP; 4 cr. ; Student Option; Every Fall & Spring)
This course explores Global and Transnational Cinemas as alternative traditions to the dominant Hollywood-centered accounts of film history. Students will grapple with the historical, social, and political motivations of cinematic projects that critique traditions of national cinema, or that resist the hegemonic force of neocolonial cultural centers. Italian Neo-realism and the French New Wave will be examined as movements that challenge politics and mass culture. Third Cinema in Latin America and pan-African cinematic movements will be examined through their struggles with both colonialism and the rise of post-colonial dictatorships. Indian and Japanese cinemas of the 50s & 60s will mark out new possibilities of filmmaking and distribution. Finally, counter-hegemonic and experimental movements in U.S.-based film, such as the L.A. Rebellion and Fluxus, will allow students to understand how opposition to Hollywood style could exist within the very centers of cultural power while also reaching out to larger global communities.

SCMC 3212W. Documentary Cinema: History and Politics. (AH,WI,CIV; 4 cr. ; Student Option No Audit; Periodic Fall & Spring)
This course explores the ethics and aesthetics of documentary cinema, arguably the very first genre of film. We will track the way documentary has widened from largely instructional and experimental uses early in its history to become a distinct genre among today?s familiar feature films. We will screen early documentaries, which may include shocking ethnographies (Nanook of the North, The Mad Masters). Over the course of the term, the syllabus makes its way to recent exemplars of the genre (films may include: Amy, American Teen, I Am Not Your Negro, A Jihad for Love, Generation Wealth, Fetish, Blackfish and so on). One of our aims will be to explore students? relations as viewers and documentarians themselves (via smartphones, Instagram, etc.) to this participatory, revelatory, and always controversial, politically fraught film practice. Documentary Cinema includes both full class lectures and discussions as well as small group discussion of films and readings, and may include the opportunity for students to create their own personal documentary. Intellectually, the course balances out a study of the grammar of documentary as an artistic practice with explorations of the ways the genre reflects broader currents of cinematic and cultural history. By the end of the semester, students should have a stronger understanding of the ways documentary cinema opens our senses to the world around us.

SCMC 3220W. Screen Cultures. (AH,WI,TS; 3 cr. ; Student Option; Every Spring)
Screens increasingly define the ways that we communicate with one another and how we encounter the world. This course will offer a critical, historical approach to the emergence of ?screen cultures? from the beginning of photography and cinema to our own age of ubiquitous touch screen displays. We will pay

a great deal of attention to the ways that such technologies drive our patterns of consumption and production as well as how they create and define our social environments.

SCMC 3221. On Television. (CIV; 3 cr. ; Student Option; Every Fall & Spring)
We will study writings on television and specific TV shows from a variety of angles to understand the rise of American broadcast technologies, how race and class are crafted on TV, representations of gender and the home, postmodernity and late capitalism, the rise and demise and of taste, global television and the public sphere, the production of ? reality? in our present historical moment, and changes in televisual technologies. Throughout the course, we will also consider what constitutes television?the technology, the form, and the content?and learn to read these three facets of it concurrently.

SCMC 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student?s work is supervised and evaluated by a site coordinator or instructor.

SCMC 3910. Topics in Studies in Cinema and Media Culture. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

SCMC 3993. Directed Study. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study.

SCMC 4993. Directed Study. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study.

SCMC 5001. Critical Debates in the Study of Cinema and Media Culture. (; 4 cr. ; Student Option; Every Fall)
This course serves as a capstone within the Studies in Cinema and Media Culture program as well as an advanced seminar in cinema and media theory. It covers such topics as contemporary cinema, transnational television, video games, digital networks, and surveillance technologies. It builds on the knowledge of cinema and media studies that students have developed over their undergraduate education. Students are given the resources and encouragement to construct larger reading and viewing lists that will further develop their knowledge of media and cinema. The final grade is based on participation, critical essays, weekly viewing assignments, and an individualized project that can include creative and professional interests.

SCMC 5002. Advanced Film Analysis. (; 4 cr. ; A-F only; Every Spring)
Application of textual analysis to the reading of a film. Students work collaboratively to discern and interpret all component aural/visual elements of what the film says and how it says it.

SCMC 5993. Directed Study. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Guided individual reading or study.

Study Abroad in Argentina (ARGN)

ARGN 1000. Language and Culture in Buenos Aires Program. (; 1-18 cr. [max 54 cr.] ; A-F only; Every Fall & Spring)

ARGN 1001. Beginning Spanish I. (; 5 cr. ; A-F only; Every Fall & Spring)
Listening, speaking, reading, writing. Some cultural readings.

ARGN 1002. Beginning Spanish. (; 5 cr. ; A-F only; Every Fall & Spring)
Listening, speaking, reading, writing. Some cultural readings.

ARGN 1003. Intermediate Spanish III. (; 5 cr. ; A-F only; Every Fall & Spring)
Conversation, comprehension proficiency. Reading/writing through literary analysis and grammar review.

ARGN 1004. Intermediate Spanish IV. (; 5 cr. ; A-F only; Every Fall & Spring)
Conversation, comprehension proficiency. Reading/writing through literary analysis and grammar review.

ARGN 1022. Alternate Second Semester Spanish. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

ARGN 3000. Language and Culture in Buenos Aires Program. (; 1-18 cr. [max 54 cr.] ; A-F only; Every Fall & Spring)

ARGN 3001. Colloquial Spanish. (; 3 cr. ; A-F only; Every Fall & Spring)
Spanish language in its spoken colloquial form. Variations based on age, social status, and regional background. Vocabulary, grammar, language characteristics.

ARGN 3003. Politics and Society in Latin America. (; 3 cr. ; A-F only; Every Fall & Spring)
Comparative analysis of social/political structures of Argentina and Latin America in 20th century. Taught in English.

ARGN 3004. Latin American Economy: The Argentine Perspective. (; 3 cr. ; A-F only; Every Fall & Spring)
Privatization, industrialization, and economic reforms in Latin America and Argentina. Inflation, structural change, poverty, changes in the external/rural sector. Taught in English.

ARGN 3005. Buenos Aires: City of the Arts. (; 3 cr. ; A-F only; Every Fall & Spring)
Unique artistic side of Buenos Aires. Theory classes, art/literature workshops. Excursions to museums, theaters, tango clubs, and opera houses. European and Latin American influences that make the city unique. Taught in English.

ARGN 3006. Topics in Argentine History. (; 3 cr. ; A-F only; Every Fall & Spring)
Study Argentina's history. Main topics include the legacy of Peron, the army in politics and government, the return of democracy, and current events. Taught in English.

ARGN 3008. Latin American Literature and Cinema. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Offered jointly by Fundacion Jose Ortega y Gasset and Learning Abroad Center. Located in downtown Buenos Aires. Spanish language. Global/cultural issues. Sampling food, reading literature, experiencing music/dance. Argentine culture.

ARGN 3009. Argentina: Stereotypes and Identity. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Intercultural perspectives on Argentina. How others perceive Argentines and how Argentines perceive themselves, through literature, humor, art, music, and history. prereq: 1004

ARGN 3011. Buenos Aires - City of the Arts: Spanish. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course focuses on the art and architecture of Argentina. Learn about the different artistic movements in the country and visit museums, private art collections, and public monuments. The city becomes your classroom. At the same time, get a broader perspective of world art that serves as a background for a better understanding of the art and architectural scene in Argentina throughout the past 300 years.

ARGN 3012. Paradox of Mental Health - Biololgical or Cultural?. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course looks at the biological basis for mental health, applying basic concepts of neurobiology. It explores the causal mechanisms of various mental health issues from autism to anxiety. The course will compare Argentina's and the United States' approaches to mental health, exploring the relationship between culture and mental health (e.g., ?culture-bound syndromes?) over time. In addition, the course will compare the use of therapy versus pharmacological approaches in treating mental illness, looking at the medicalization of mental health in Argentina as compared to the United States.

ARGN 3015W. Spanish Composition and Communication. (WI; 4 cr. ; Student Option; Every Fall, Spring & Summer)
Writing, speaking, reading, and understanding modern Spanish at level of majors/minors. Students generate compositions and read texts from Spain and Latin America. Grammar review, audio tape exercises, paired work, small group work, discussion, oral presentations, peer editing, process writing.

ARGN 3104W. Introduction to the Study of Hispanic Literatures. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ARGN 3301. Cross-Cultural Psychology. (GP,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course?s aim is to understand how cultural factors influence human behavior and development. Additionally, the course may discuss interaction between different cultures and how to solve the difficulties that may arise during the acculturation process. The course studies the vision and treatment of mental disorders in different cultures, especially the differences and similarities between Argentinian and North American cultures. It will also analyze and compare mental health systems of both countries.

ARGN 3302. Understanding Argentina. (1 cr. ; Student Option; Every Fall, Spring & Summer)
This course seeks to provide students with an intercultural understanding of contemporary Argentina through classes, site visits, and critical analysis, all of which will allow them to draw comparisons to their own home country. The syllabus also focuses on the different spheres where the individual and the social intersect in Argentina: the private space, the public space, the political space (which may differ from the students? home country). The departing point of this course will be a synchronic overview of Argentina nowadays. The fact that students will be culturally immersed in the host country for a whole semester will strengthen their self-awareness and global perspective. Students will learn about the interplay of some issues in today's Argentinian society: identity, politics, gender, ethnicity, migrations, education, culture, power relations, and similarities and differences with the USA.

ARGN 3640. Service Learning in Buenos Aires: ENG. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Students work with non-governmental and community service organizations devoted to helping children/adults in impoverished urban areas, immigrants from border countries, and groups at high risk (women, children, seniors).

ARGN 3641. Service Learning in Buenos Aires: SPANISH. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Students work with non-governmental organizations and community service organizations to help children/adults in impoverished urban, immigrants from border countries, and groups at high risk (women, children, seniors).

ARGN 3752. International Marketing. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ARGN 3896. Internship in Buenos Aires. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
The Buenos Aires internship course is designed to provide students with the opportunity to become more knowledgeable regarding the local culture, organizational cultures, and the professional environment. Through practical internship experiences as well as readings, discussions, and written assignments, students will deepen their understanding of the host country?s cultural context and critically examine their own worldview. The course is designed to guide students in the internship experience and create a foundation for a successful professional career. In addition to gaining a cross-cultural comparative view on work, the topics and assignments will deepen students? insights about themselves, professional expectations, and being successful in the workplace. Students are expected to make a valuable contribution to the internship site through the completion of major projects or tasks. This course focuses on themes students are expected to develop and enhance over the course of the semester through class seminars and on-the-job experience, particularly characteristics of work dynamics in Argentina; work relations, work protocol, and hierarchy; differences between Argentina and the US, notions of leadership in Argentina, and local cultural traits that are unique to the country; and multiculturalism, age, gender, and communication in the workplace.

ARGN 4621. The Global Economy. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

Study Abroad in Dublin (DBLN)

DBLN 1101. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1102. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their UMN transcript.

DBLN 1103. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1104. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1105. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1201. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1202. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1203. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1204. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 1205. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 2051. Financial Accounting. (GP; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course is concerned with providing students with an understanding of and ability to apply the fundamentals of accounting. It presumes no prior knowledge of accounting from previous levels, however there is material that students who have studied

the subject before will find challenging. The student is introduced to the key concepts underlying accounting and recording business transactions. It also encompasses the preparation of financial statements for different business entities. It sets the foundation for further study in the area and assist with the student underlying understanding of accounting. There is also a strong emphasis on financial statement analysis and understanding annual reports.

DBLN 2551. Business Statistics, Data Sources, Presentation and Analysis. (GP,MATH; 4 cr. ; Student Option; Every Fall, Spring & Summer)
This course is concerned with providing students with an understanding of and ability to apply (1) exploratory data analysis, (2) basic inferential procedures, (3) regression analysis, and (4) experimental design. The methods to be covered have been selected for their relevance to managerial decision making, and problem solving, and to other courses in the undergraduate curriculum. Beyond simply teaching the application of these methods, a primary objective of the course is to improve students' "statistical thinking abilities."

DBLN 3010W. The Playwright in Practice: Writing for the Stage in 21st Century Ireland. (WI; 3 cr. ; Student Option; Every Fall & Spring)
Irish playwrights have contributed disproportionately to the output of English-language drama over the course of the 20th century, creating some of the most memorable dramatic literature of the last hundred years. With that in mind, this intensive practical playwriting course will interrogate the tradition of theatrical writing in the Irish capital of Dublin by engaging comprehensively with a variety of modes and disciplines specific to the act of writing for the Irish stage. Contemporary Dublin has undergone an unprecedented process of modernization rarely seen in the developed world, with the city becoming in just twenty years a multicultural, cosmopolitan space that is embracing provocative ways of seeing and creating work meant for theatrical performance. Questions about the relevancy of the practice of writing in creating performance, how authorship of a play is determined, and the slipperiness of language are now at the heart of Irish theatre?s drive to redefine itself. Challenged by a wide range of disciplinary approaches to writing and rewriting, students will be exposed to a host of methodologies for creating dramatic literature for the stage specific to this unique moment in Irish theatrical history and, in the process, gain an appreciation for the important role writers still play in making theatrical performance.

DBLN 3011. Storytelling: Writing Irish Cultural Narratives. (3 cr. ; Student Option; Every Fall & Summer)
Study abroad course. What does it mean to tell a story? Does it matter why or how someone tells a story? Storytelling is an Irish oral tradition that dates back to Celtic mythology, but is also important to modern day Ireland. This course will examine how storytelling brings Ireland to life, and how Dublin and Ireland are represented in stories. How can you use a building, a street, a painting, or a performance to construct a story that can be shared with others, and that creates a narrative that resonates with the specific time and history of that place? The course will look at the tradition of the short story in Irish writing, and also the development of the Irish novel. Students will also think about their own stories, and how they can be told.

DBLN 3012. Engaging Ireland: Past, Present and Future. (3 cr. ; Student Option; Every Fall & Summer)
Study abroad course. All students studying in Dublin will take this course, regardless of their track choice. This course has three main components: gain knowledge of Ireland past and present through modules focused on areas such as economics, religion, language, sports, and education; engage with the host-country with activities such as internship, research, performance, volunteer, sports team, or teaching practicum; and explore Ireland through a range of study tours to Western Ireland and Northern Ireland.

DBLN 3013. Performance in Irish Context. (3 cr. ; Student Option; Every Fall & Summer)
Study abroad course. Students will study and actively participate in the art of performance, focusing on Irish writers like Samuel Beckett, Brian Friel, Conor McPherson, Martin McDonough and more. Actor training, and so this course, is physical, emotional and intellectual. The work will include vocal training and expression, dynamic conditioning of the instrument of the body, and textual analysis. In addition the course will help actors unlock the specific voices of Irish playwrights. Students will work on scenes and monologues as well as their own improvisations. This will be an acting class, and will require one previous fundamentals of acting or performance class at your home institution, or permission by the instructor.

DBLN 3014. Dublin Internship: Learning through Experience. (3 cr. ; Student Option; Every Fall & Summer)
Study abroad course. This course explores the world of work in Ireland and how students respond to the challenges that they can expect to encounter while interning in Dublin.

DBLN 3015. Irish Literature and Film. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will examine dominant images of Ireland in film and literature from Romantic Ireland and the images of the Celtic Revival, to the harsher realities of Irish life and the transformations of Irish society under modernity and globalization. Issues discussed will include emigration and immigration; nostalgia and loss; gender, family and community; Church and State; politics and violence; language and communication, and the country and city.

DBLN 3101. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3102. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3103. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3104. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3105. University College Dublin Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin and Business in Dublin study abroad programs to represent a course taken at University College Dublin. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3201. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3202. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3203. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program

to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3204. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

DBLN 3205. Dublin City University Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study Abroad in Dublin study abroad program to represent a course taken at Dublin City University. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

Study Abroad in Florence (FLOR)

FLOR 1001. Beginning Italian. (; 3 cr. ; Student Option; Every Fall & Spring)
Listening, speaking, reading, communicative competence.

FLOR 1002. Beginning Italian. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
This second beginning level course of Italian uses a communicative approach to help you quickly develop the ability to communicate in Italian in everyday practical situations as well as to acquire the skills necessary to read and write effectively in Italian. From the start, you will be expected to comprehend and produce some Italian by actively engaging in communicative activities that have real world relevance. Role-plays, pair and group work, and specific tasks and assignments carried out in and out of class will provide you with numerous opportunities for learning the language while interacting with locals and other learners in Italian. Listening, reading, speaking, and writing are integrated into all activities and are tested in compositions, oral presentations, grammar tests, and exams. Special emphasis is placed on the expansion of communicative functions and of the vocabulary. Finally, class and home assignments and projects will encourage you to become acquainted with various aspects of Florentine life and with the culture and society of Italy at large.

FLOR 1003. Intermediate Italian. (; 5 cr. ; Student Option; Every Fall & Summer)
This communication-based intermediate course of Italian helps you develop the ability to communicate effectively in everyday, practical situations and to read authentic materials in Italian. The course reviews and completes all basic grammar structures, reinforces the mastering of these elements in real life situations, and expands your vocabulary and knowledge of more complex grammar and syntax structures. As the language learning progresses, you will be expected to produce more Italian while actively engaging in communicative activities that have real world relevance both in and out of class, and practice all four linguistic abilities. You will be encouraged though a variety of in- and out-of-class activities to explore the city of Florence and engage in guided interactions with the local culture. You will also be exposed to a variety of registers and uses of the language. Site visits and authentic materials in a variety of media are used extensively in order to facilitate your communication and comprehension skills and with the culture and society of Italy at large.

FLOR 1004. Intermediate Italian. (; 5 cr. ; Student Option; Every Fall, Spring & Summer)
This communication-based intermediate course of Italian helps you develop the ability to communicate effectively in everyday practical situations and to read authentic materials in Italian. The course reviews and completes all basic grammar structures, reinforces the mastering of these elements in real life situations, and expands your vocabulary and knowledge of more complex grammar and syntax structures. As the language learning progresses, you will be expected to produce more Italian while actively engaging in communicative activities that have real world relevance both in and out of class, and practice all four linguistic abilities. You will be encouraged though a variety of in- and out-of-class activities to explore the city of Florence and engage in guided interactions with the local culture. You will also be exposed to a variety of registers and uses of the language. Site visits and authentic materials in a variety of media are used extensively in order to facilitate your communication and comprehension skills with the culture and society of Italy at large.

FLOR 1201. Beginning Drawing Studio. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3004. Photography: Exploring Society Through the Camera's Lens. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3005. History and Sociology of Modern Consumerism. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3006. Cross Cultural Psychology. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3007. Made in Italy: Retail Merchandising in Florence. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

FLOR 3008. Entrepreneurship: Small Businesses in Florence. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

FLOR 3009. Internships in Florence: A Comparative Approach to the Italian Workforce. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3010W. Literary Representations of Florence: Space, Self & Other. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3012. Florence and the Mediterranean: A Sea of Culture. (3 cr. ; Student Option; Every Fall, Spring & Summer)
During the Middle Ages and in the early Modern Age, three great civilizations clashed for the control of the Mediterranean basin: the Latin West, the Byzantine Empire, and the Muslim world. But the sea was not just a theatre of war, it was also a lively economic area, with trade routes crossing it from north to south, from east to west. Moreover, it was the place where different cultures met: This course will explore their reciprocal influence, with a special focus on art history and a mainly Italian and Florentine point of view. Topics will include: the impact of Islamic art on Western culture; the role of Byzantine art in the development of Florentine painting; the rediscovery of Greek classical culture and its importance in Renaissance civilization; the consequences of the fall of Constantinople and of the expansion of the Ottoman Empire. Students will explore Florentine churches, palaces, and museums in search of visual evidence of the links between the city and the diversity of Mediterranean culture.

FLOR 3014. Fashion & Arts Communication. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course was structured out of four core ideas: how fashion designers and artists communicate and market their art; how institutions communicate and market the fashion items and artworks they have on display; how the audience communicates their experience of fashion and of art and how this influences marketing and promotional strategies; and how these three processes are implemented through communication and marketing channels and for which purposes. The course will explore its core ideas integrating theoretical and experiential-learning approaches. Starting from the fundamentals of communication theory, with a focus on listening skills and effective storytelling, students will draw from case studies to understand the underlying core of communication activities in fashion and the arts. The promotional process in both industries will be analyzed in its main parts (research, planning, execution, evaluation), as well as in its ethical and legal implications. Students will experiment with promotional tools to understand the connection between public relations and the media, and explore the blurred line between public relations and marketing when dealing with social media contents and strategic planning. Ultimately, they will learn the fundamentals to develop and design a communication campaign.

FLOR 3015. Food & Identity in the Mediterranean: A Cultural History. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is an investigation into how the identities of different peoples in the

Mediterranean can be understood through the lens of the food they cultivate, trade, and eat. After an introduction to different definitions of identity, with a particular focus on the formation, maintenance, and evolution of group identity through cultural practices, the course will analyze the history and culture of food in different civilizations of the Mediterranean basin: Phoenicians, Ancient Hebrews, Greco-Romans, and others. Study of the different diets of the Byzantines and the Venetian merchants, and the influence of the spice trade and nascent Islam during the Middle Ages, will show how identities are formed, consolidated, and changed through food. The Renaissance, especially in Florence, will be the object of an in-depth analysis as a pivotal time in Western food culture and in the arts. The course will then investigate the relationship between Florentine and French elite identities via the birth of modern table manners (and dishes) and their connection with the rise of the first nation states. The last part of the course will consider modern states, migration, and how these interconnect with agricultural practices and industrial food processes that have changed the nature of food production in the Mediterranean.

FLOR 3016. Photography for Social Media. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course introduces students to the principles of photography for social media and how essential it is to learn about storytelling. Students will also learn about the power of imagery and its wider impact in the digital world. While an increasing amount of people carry around a phone every day, how many really know the potential of these powerful cameras, and how to use them to create and share images that make an impact with social media audiences? The course will appeal to students majoring in communication, marketing, design, journalism, and sociology and to all students interested in learning practical skills in photography, including compositional and technical information about apps, smartphone settings, and gear. There will also be time dedicated to analyzing social media impact on data, privacy, image protection, and intellectual property. This is not a social media marketing course but is designed as a creative exploration that will help students develop their eye for exciting imagery and improve their shooting skills.

FLOR 3100. Advanced Italian Grammar and Conversation. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3201. Intermediate Drawing Studio. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

FLOR 3346. Sociology of Crime: Mafia and the Media in Italy. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

Study Abroad in London (LNDN)

LNDN 1101. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 1102. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 1102. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 1103. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 1104. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 1105. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 3101. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 3102. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 3103. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 3104. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 3105. Queen Mary University of London Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in London study abroad program to represent a course taken at Queen Mary University of London. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

LNDN 3201. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

LNDN 3202. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

LNDN 3203. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

LNDN 3204. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

LNDN 3205. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

LNDN 3210. Historical Backgrounds of English Literature. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)

Study abroad course

LNDN 3211. Terror and the Witch: Fictions of Witchcraft from Shakespeare to Harry Potter. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3212W. Travel Writing: Topics in Composition. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3213. 20th and 21st Century Art. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Art movements and major artists of Modern period, 1900-1970. Various visual media in relation to theories, historic events, scientific/ technological changes, and literature. Emphasizes European art. Influences from other cultures.

LNDN 3214. Modern Acting. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3215. British Theatre Now and Then. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3216. Practical Shakespeare Acting. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3217W. Writing the City: London. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3218. Contemporary British Film. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3219. London Across History, Literature and Film. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

LNDN 3220W. Contemporary World Architecture in London. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3221W. Writing a Play. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3222. Detective Fiction: Crime and the City. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3223. Special Studies in Economics: Globalization Studies. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3224. International Dimensions of Organizational Behavior. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3225. Issues in Global Economic Development. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3226. Religion in Modern Britain: A Comparative Perspective. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3227. Global Workforce Management. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3228. Managing Global Supply Chains. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3229. Dateline London: Reporting and News Writing in a European Context. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3230. The Aesthetics of Power, Prestige and Social Change: A Survey of Renaissance through Modern Art Hist. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3231. Internet 2.0. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3232. Modern Art in London: From the Sublime to the Ridiculous. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3233. Queer Studies and LGBTQ Life in London and the Global World. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3234. Styles of Acting. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3235. Witchcraft and Magical Performance in London. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

LNDN 3236. The Law of Wrongful Convictions. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Wrongful convictions are a universal problem that in recent years has received a great deal of attention from the media, legislatures, and courts around the world. From the Netflix series "The Making of a Murderer" to the NPR podcast "Serial" there is a growing fascination with how people are wrongfully convicted and the processes and procedures used to right these wrongs. This course is taught by a law professor who has spent his career litigating wrongful conviction cases and directing the California Innocence Project. It is designed to provide students with an overview of the issues and case law related to wrongful convictions through the use of interactive exercises, lectures, readings, videos, and case studies.

LNDN 3237. International Comparative Studies of Issues Impacting Education Systems. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The course provides students with an introduction to the school system in their study location and that of the other CAPA study locations. There will then be opportunities to compare it to the American system and to other learning communities in the world to better understand how they reflect and perpetuate the cultural values and identity of a country. Students will explore current educational issues from an intercultural perspective and develop their own informed views. At the end of the course, students are expected to have acquired a basic knowledge and understanding about the structure and content of contemporary school systems and a capacity to use this knowledge for cross-national comparisons. The insights gained will allow students to consider a key question: how can we all contribute to the school of the future? This course is designed as a CAPA Globally Networked Programme (GNL) connecting CAPA students in different study locations in order to examine issues from a transnational perspective. It will provide a unique opportunity to broaden critical understanding of the school system role in the identity building process at an individual, social, political, and national level. Through collaborative and comparative learning processes in both local environments and transnational communities, students will develop a deeper understanding of the school system role in shaping values, societies, and cultures.

LNDN 3238. Literature and the Environment. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course examines the ways in which writers in English have engaged with the natural environment. We will read a range of authors, from the advent of industrialization in the late eighteenth century up to the present age of climate change, to consider how they have celebrated the ?natural world,? and looked critically at human effects on ecosystems. Throughout, we will be attentive both to the literary qualities of writings about the environment and to their historical and political contexts. We will be studying a range of genres, including poetry, fiction, nonfiction, websites and photographic texts. The course will be organized chronologically, with units on key ideas in the study of literature in relation to the environment: pastoral, wilderness, pollution, apocalypse, and ecosystems. Since the course will be set in London, we will also consider the design and representation of ? urban nature,? including parks, gardens, zoos, riverbanks, and art exhibits. There will be some out-of-class visits and walks (with attention to accessibility, as needed).

LNDN 3239. Theatre in the City. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Plays are written to be appreciated in performance, not only to be read; a play does

not truly come to life until it appears on a stage. The course will introduce students to the current variety of theatre being produced in London. The course aims to provide multiple levels of theatre appreciation, and is therefore open to students who both have a background in theatre and those who have a general interest in expanding their knowledge.

LNDN 3240. Arts Administration: The Creative Industries in a Digital World. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Arts and culture are rapidly growing sectors of the economy in the UK and worldwide. This course will focus on the ways in which the Creative industries are structured, and how arts administrators successfully share creativity with the public and lever-age the commercial opportunities of creative production. Key topics to be explored will include the arts as a business; managing financial imperatives and the artistic process; promoting and presenting cultural products. Case studies will be drawn from a variety of fields such as film, digital media, gaming, theatre, museums, and publishing, and students will have the opportunity to engage directly with practitioners successfully working in various fields of arts and culture and those managing the interface between creativity and business in London. It is an industry that is growing year on year, but it can be a difficult market to navigate and capture economical value, as "cultural goods" are less fixed, or less concrete than other measurable areas of ex-change. Students will examine the history of the Creative Industries to understand the current environment in an historical context. They will focus specifically on the shifting creative industries in a digital world with the advent of social media, streaming services, revolutionary marketing techniques, crowd-sourcing, and audience creation. Students will explore key concepts and theories, but they will also explore the practical applications of the industries in action. They will gain a deeper understanding of the media they consume via interaction with professionals, venues, and event opportunities highlighted in this module. Throughout this course, students will be encouraged to explore their own interests of the Creative Industries. By bringing personal experience and interest into an analytical environment, this module will allow students to gain a deeper understanding of media artifacts, and provide them with the tools and skills to expand their understanding and engagement with their chosen sectors.

LNDN 3241. Integrating Character through Voice and Movement. (3 cr. ; Student Option; Every Fall, Spring & Summer)
In this performance-based theatre course, students will engage in acting techniques that utilize psycho-physical training, inte-grating their voice and body as they create characters from modern and contemporary texts. Students will begin by examining and building awareness of their own vocal and physical apparatus through solo and ensemble exercises. Students will learn the anatomy, physiology and physicality of the voice and build healthy and effective methods of vocal projection through a progression of exercises developed by Kristin Linklater and Patsy Rodenburg. Students will be concurrently introduced to various physical theatre training techniques such Michael Chekhov, Jacques Lecoq, and Vvesyold Meyerhold. For the final project, students will integrate these vocal and physical techniques through creating characters from selected scenes. Throughout the course, the actor-student?s journey will be focused on mind-body connection, self-awareness, relaxation, presence, emotional vulnerability, and clarity in verbal and non-verbal communication.

LNDN 3242. Global Perspectives on Human Rights in Action. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The notion of human rights has become central to global politics today. It is not a single subject but a broad field of potential investigation: this intensive seminar provides a multi-disciplinary introduction to the topic, critically examining the politics of human rights, their contentious nature and uneven global implementation. Throughout, the focus will be on practical issues and the contested politics of human rights in action through a range of topical case studies. Students will evaluate key debates about the politics and morality of human rights, analyze and explore the theoretical foundations of human rights concepts and topical issues relating to human rights from a variety of global, regional and local perspectives. The course critically examines the history and development of concepts of human rights and the philosophies underpinning them, as well as current frame-works of international human rights law and the relationship among current debates in human rights, political power and social injustice. Topics to be covered will include human rights and international relations; humanitarian intervention and the responsibility to protect; postcolonial and feminist critiques of human rights; the intersection of human rights with gender, sexuality, ethnicity and class; the relationship between human and civil rights; women's, children's and indigenous peoples' rights; and the practical implementation and enforcement of human rights.

LNDN 3243. London Museums: Introduction to British Museology, Society and Culture. (3 cr. ; Student Option; Every Fall, Spring & Summer)
In the early twenty-first century, museums are becoming increasingly more relevant to all parts of society, exhibition displays are often controversial and politically charged. This course is an introduction to both British society, culture and museology. The course considers museums as reflections of the British psyche, unique cultural constructs that help us understand "Britishness". We will also be looking at museums as institutions of "global" heritage in the context of a global city, with a unique British perspective. As an introduction to museology, the course will look at the development of the modern museum and its operation, as well as interrogate the different types of museums. We will look at the impact British history, society and politics have had on London museums, their creation and their day to day operations and audiences. Taking advantage of our location, we will do field work in eight different museums, from the famous and vast "global" British Museum to the small and privately-owned Saatchi Gallery. Students will analyze the ways in which imperialism and its legacy, as well as Britain's global relationships have influenced museum development and how this gives rise to the politics of patrimony. We will look at questions of cultural appropriation and the political debate on repatriation versus protection. This debate has recently been energized by the depredations of IS on what many would call the global heritage of Iraq and Syria. We will also be looking at material culture and what it says about individuals and society. Students will examine the choices, ethics and political and social meanings of both creating material culture and collecting it, and the ethics of preservation and restoration. While the creation of material culture has specific psychological, social and often political meanings; collecting, preserving and displaying one particular object involves a very complex decision-making process which is influenced by the cultural values of the decision maker. We will examine, for example, the impact of the Classical period on British society in the past and present, its importance to class and education in Britain, and how this is reflected in museum collections. Students will also look at the complex decision making of conservators and restorers. These decisions have social and political impact, choosing to emphasize one period and use over another. The course will also look closely at decision makers and their role in the museum industry, the origins of museums from individuals to trade exhibitions and current museum professionals, as well as the impact museum audiences have on the work of museums. Students will also examine the impact of communities on museum development, on exhibition creation, how engaged museums are with their communities, and how the unique diversity of London is reflected (or not) in its museums.

LNDN 3244. Shakespeare at Play: Performing the Bard using Folio and Physical Techniques. (3 cr. ; Student Option; Every Fall, Spring & Summer)
In this performance-based theatre course, students will engage in acting techniques that utilize mind/body awareness as well as analyzing acting clues from the First Folio (the first printed collection of plays published in 1623). Using vocal and physical exercises, students will perform hands-on practical activities to playfully engage with their acting partners and the text, immediately putting into practice these clues in a similar style as Shakespeare's company working at the Globe Theater of the 16th century. In addition to textual analysis, students will engage in physical theatre techniques such as those used by Meyerhold, Lecoq and Boal to engage in story, character and to physicalize the given circumstances of the text. Topics covered in this class include: breathing and phrasing on the line, punctuation, capitalization, rhythm &

meter, line endings, rhetoric, antithesis, and caesura. Students will work on one monologue and two scenes, both in verse and in prose, as well as attend performances and events at the Globe and the Royal Shakespeare Company in Stratford.

LNDN 3245. Comparative Health Systems. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Health care systems are having to respond to a number of competing challenges. The pressures of globalization, aging populations, increasing patient demands and the rising costs of research and medical treatments are forcing us to look more critically at how healthcare is delivered to devise changes for the future. Changes made to health systems are often based on economic and political rationale and with many countries currently experiencing significant changes to the way in which health care systems have historically been funded and delivered. This course will introduce students to the healthcare system in the UK and the context within which it operates. It will start by looking at the introduction of the National Health System (NHS) in 1948 and take students through the key changes that have taken place right up to the present day. Drawing on a series of cases studies, students will be able to compare the UK model of healthcare with other healthcare systems such as in the USA, France, Sweden and/or from low and middle-income countries. Students will explore a range of key concepts and themes in comparative healthcare from a multidisciplinary perspective. They will also develop critical appraisal skills to assess the quality of evidence used to support developments in healthcare policy and practice and help students to look critically at the role that governmental and non-governmental organizations play in healthcare. Throughout this course, special attention will be paid to comparisons between the UK, USA and low and middle-income countries to allow students to directly relate their learning to their own educational and healthcare setting and contrasting health systems worldwide. Emphasis will be placed on the multiple factors that determine health at the individual and population levels. By comparing patterns of health across different demographic groups, immigration status and so on, students will explore a range of different intersections to expand their understanding of impacts of health inequalities on different populations, and how different countries have sought to address these inequalities.

LNDN 3246. Global Perspectives on Nursing and History of Midwifery. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is an exciting opportunity to experience nursing and midwifery history in the UK and further afield. The course will focus on major influences in the development of nursing and midwifery practice from the perspectives of medical, nursing and midwifery history. Case studies will be drawn from London, the UK and continental Europe, with comparative perspectives from the rest of the world where appropriate. Topics will include the impacts of social change, evolving attitudes to social care, and the role of the Enlightenment, French revolution and American Independence, as well as the transition from Agrarian to Indus-trial Society in shaping cultures and practices of nursing care. The course will also consider the contributions made by Florence Nightingale, Mary Seacole and Mrs. Bedford-Fenwick to nursing practice. It will also look at pioneers like Sir Frederick Truby King who set up the Plunket Society in New Zealand in 1907, from which sprung Plunket nurses, maternity and childcare still in practice today. The course will examine the ways in which medical breakthroughs, public health, epidemiology (social determinants of health), religion, philosophy, ethics, law, sociology and economics have played a part and influenced and affected clinical practice and in turn the influences on the professional role and practice of nurses and midwives. Students will be encouraged to reflect on the historical changes that have had a particular impact on patients, their families and the wider public. This will enable students to gain a deeper understanding of historical reasoning and insight into a variety of forms of historical evidence. In turn, this will enable students to consider the ways in which history has underpinned past healthcare provision, and the potential that exists for history to affect healthcare in the future and if and how far lessons can be incorporated into modern clinical practice. Speakers will include staff from Public Health and Epidemiology at a major London University and Medical school. The course will also enable students to access a broad range of distinctive museums and galleries to consider a wide range of healthcare history.

LNDN 3247. Communicate: Basic Acting Techniques for Confidence-Building and Better Presentations. (AH,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course introduces the student to the basic skills of acting and shows how acting techniques can be used to improve self-confidence, presence, and vocal presentation in a range of different work and life scenarios. Over the semester, students will learn to improvise, undertake creative challenges and begin to master a range of techniques. Students will keep a developmental journey during the semester, and also perform a dramatic monologue. For the final assessment, students will write a 5-10-minute speech about something they feel passionate about, then deliver it at Hyde Park?s famous Speaker?s Corner to fellow students and an audience of Londoners.

LNDN 3248W. Community Engagement: Service-Learning in London. (CIV,WI,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This is an interdisciplinary course providing a unique opportunity to become directly involved in the realities of community engagement and grassroots activism and project work. It is designed to stimulate critical thought and reflection on the challenges and opportunities of community service and support students? personal and professional development, as well as introducing students to topical debates about how best to manage and respond to the challenges of a diverse, unequal city. The course will explore the historical, sociological, and political context of community and service in the UK and theories and models of leadership, organizational behaviour and management in the context of community work.

LNDN 3249W. Experiencing Globalization: Society, Space and Everyday Life in London. (CIV,WI,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
What is globalisation? How is it transforming the world and everyday life, and why has it become so controversial? Who are the winners and losers in a globalising world and what are the implications for our shared global future? How do developments in London relate to major shifts in the workings of the world over the last four decades? As a city with complex global connections, London has been enmeshed in deepening global social, political and ecological crises, as well as becoming an important arena of conflict over efforts to address them. This course critically explores these issues by examining the city?s complex relationship with the forces of globalisation and the ways in which everyday life and experience in London, as well as its people, institutions, and organizations, have been shaped by - and are contributing to - global change. Emphasis will be placed on critically examining the effects of neoliberal globalisation, the growing (though uneven) global dominance of projects promoting increasing freedoms for capital under the banners of ?free markets? and ?free trade.? This course also highlights a variety of collective challenges to these projects, some of which operate largely within the confines of London, others organized along trans-local and transnational lines. Their economic, political, cultural, and ecological aspects will be analyzed, examining the importance of class dynamics and their intersection with gender, ethnicity and other processes of hierarchical ordering. Theoretical and conceptual concerns will also be addressed, such as relations between the local and the global, the workings of power and contestation under neoliberal conditions, the interplay of space, class, and gender, and questions of responsibility within and beyond the limits of community and place.

LNDN 3251. Strategic Communication and Social Media: Theory and Practice. (GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This class combines theoretical analysis, case studies, and hands-on practice to understand and execute traditional and online communications strategies. The course will begin with a literature review of theories and principles relevant to the practice of strategic communication and social media practices including media effects, Internet effects, and uses and gratification theory. Second, cases studies will be utilized to investigate the effectiveness of messaging strategies employed by not-for-profit and commercial organizations as well as individual actors such as businesses, politicians, and influencers.

Finally, students will work for a real-world client and their own portfolios to formulate an overarching communication strategy inclusive of recommendations for messaging strategies across all platforms (traditional messaging, website, Facebook, YouTube, Instagram, press releases, e-blasts, and speeches.)

LNDN 3252. Childhood's Books. (GP,LITR; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course examines writing for young people, with a focus on children?s books about cities. We will consider how representations of childhood in literature change over time and in response to specific historical and cultural events, with special focus on literary representations of children in urban environments and the role of the city in the development of children?s literature as a genre. We will explore the relationship between books for children and the historical experiences of children in London. Readings will include classic and contemporary children?s literature by British, American, and African authors, including Peter Pan; The Lion, the Witch and the Wardrobe; and Zarah the Windseeker, including novels and picture books. The class will take field trips to notable sites in London relevant to the history of childhood and children?s literature. Students will write regularly in response to course readings, field trips, and lectures, and they will conduct original research about the relationship between the history of children?s literature and the city of London, then present that research in class.

LNDN 3253W. Contemporary Issues through Community Engagement: Social Dynamics of London. (CIV,WI,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This is an interdisciplinary course with a sociological focus, as well as a unique opportunity to become directly involved in the realities of community engagement and grassroots politics. It is designed to stimulate critical thought and reflection on urban inequalities in London and to introduce students to topical debates about how best to manage the challenges of a diverse city. The course will explore the historical, sociological, and political context of community and service in the United Kingdom (UK). It will also examine in depth forms of social, economic, and political exclusion, such as uneven access to health care, education, financial resources and political representation, and analyse the social dynamics within and between the multiple communities which co-exist in London. The course therefore combines classroom learning with practical exposure in placements to foster knowledge and understanding of community service in the UK today. Weekly seminars and readings enable participants to understand contemporary social dynamics and illuminate such issues as the history of welfare provision, urban regeneration, political power, social deprivation, and the interplay of class, gender, and ethnicity in the city. Three key interrelated themes will be followed throughout the semester in order to provide a structured reflection on questions which affect society today: urban life?including topical issues such as social polarization and neighbourhood change; super-diversity?multiculturalism and the impact of immigration on identity politics and community relations; welfare and exclusion?marginalized groups, uneven access to services, the changing role of the state, poverty, housing, and homelessness.

LNDN 3254W. Introduction to Science Fiction. (LITR,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
What lies beyond ?The Final Frontier?? Why does it matter if androids dream of electric sheep? What will our future look like and who will be there to enjoy it? What role do technology, ethics, and/or politics play in imagining our future? Why has science fiction become such a central metaphor for our daily, lived experiences? Introduction to Science Fiction discusses them all. This course is designed to expose students to a broad spectrum of science fiction. We will examine representative texts from each of the modern, roughly defined as the 20th and 21st Centuries, ?periods? of the genre. The class will discuss the ongoing debate surrounding the ?work? performed by the genre, as well as its themes, and stylistic movements.

LNDN 3255. Moving Images Editing: Theory and Practice. (AH; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Moving images are ubiquitous. As one of the most pervasive manifestations of the digital age, they broke out with the confines of the cinema theatre and show up on the multitude of screens around us. Just as we are surrounded by many forms of the audio-visual, we also encounter a multitude of editing practices. From blockbusters to YouTube videos, we experience images that are carefully selected and artfully cut in a way that is entertaining, persuasive, or simply moving. The course is designed to introduce students to the theory, practice, and art of editing. It intertwines historical accounts of editing practice with media analysis and hands-on exercises. Each of the first nine sessions is devoted to one of the key concepts that illuminates intersections between media and culture: conversation, gaze, action, persuasion, story, beat, humour, metaphor, and voice. Each session is then divided into three distinctive parts. The first uses film excerpts to showcase editing devices employed in relation to the theme of the class. The second introduces a theoretical understanding of the pertinent editing procedures and instigates a discussion around them. In the last part of the session, students will use a pre-selected set of clips to create their own edit. The course is based on an innovative approach to editing techniques that sees them in a close dialogue with the underlying cultural phenomena that shape the current media landscape.

LNDN 3256. Digital Media Practice. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Digital media permeate most social and economic interactions of today. Still and moving images not only serve entertainment but also inform the way we communicate, learn about the world, purchase goods, and express our identities. This course focuses on digital media as a contemporary means of communication placing them in the context of remix culture. It will take students through the core themes of narrative, rhetoric, remix, and voice, exploring them through two areas of practice-based investigation: composition and audio-visual techniques. This intensive and comprehensive course will allow students to create their own portfolio, including a selection of digital media techniques used in a wide range of settings, from marketing videos to audio-visual essays. Quickly and efficiently students will learn how to produce videos for social media, conduct interviews, and present themselves in front of the camera. The course will offer basic skills in digital photography, camerawork, editing and podcast production. Students will also be able to choose one of the four specialised areas which include VR production, social media advertising, audiovisual essay filmmaking, and digital journalism. The content of the students? portfolios will be produced as part of weekly assignments throughout the course, as students develop their skills, with a final project in their area of specialisation. While the emphasis is on practice, each class includes a theoretical discussion that provides a critical framework for working with visual media. Topics explored include copyright and political aspects of the online, as well as its business and marketing side. This will allow students to both understand the cultural context of digital media and use them effectively.

LNDN 3257. Cybersecurity and Privacy Regulation. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Cybercrime is a global threat to national security, essential services, businesses, and private individuals, costing billions of dollars in damage around the world. Recent years have seen significant growth in the scale and complexity of cyber criminality as cybercriminals are becoming more sophisticated in exploiting security vulnerabilities online, such as the massive breach of personal data stored online and recent coordinated ransomware campaigns against organisations around the world. Cybercrime is also transnational, with criminals and technical infrastructure operating across and between national jurisdictions, requiring international collaboration to combat multiple threats. This course examines current frameworks of US cyberlaw, procedures, and key legal cases and their implications for future practice and policy, and compares and contrasts US, UK, and EU law at the interface of criminal law, technology, and information sciences.

LNDN 3258. Introduction to Astronomy: British Contributions and Developments. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will explore human knowledge of the solar system and of the night sky, as well as the growth of astronomy as a science. The development of astronomy in England has been influenced by many factors and represents a rich microcosm of the evolution

of astronomy in the western world. British contributions to astronomy will be used to exemplify the progress and achievements of this field of science. Throughout history astronomy has been intertwined with both time-keeping and navigation, and we will explore these connections in and around London. The passage of time is manifested through the motions of the sun which we will investigate when we visit sundials throughout London. More elaborate structures, like Stonehenge (which we will discuss and visit), can be used to mark the passage of time on greater scales. The importance of astronomy to time-keeping also made it invaluable to navigation. When we visit the National Maritime Museum, we will examine and discuss the instruments in their Astronomical and Navigational Collection to elucidate the link between astronomy and navigation. This link between the two areas meant that the interests of astronomers intersected with the interests of the government, leading to the development of the Royal Observatory at Greenwich, which we will also visit and explore. Lastly, when we visit Westminster Abbey, we will see that the importance of the work of astronomers was so valued that the scientists themselves were esteemed.

LNDN 3323. Shakespeare in London. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Representative sampling of Shakespeare, including the four major tragedies. Some attention to English Renaissance period and Shakespeare's time.

LNDN 3324. 20th Century British Fiction. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Responses to colonialism, impact of World War I, changing conditions for women and for contemporary multicultural Britain. Literary movements/styles (realism, modernism), narrative techniques/perspectives (1st/3rd person, limited point-of-view, stream of consciousness). Use of symbolism, imagery, irony, etc. Role of author/reader. Problems of interpretation.

LNDN 3328. British Cinema. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Major works of 20th century British drama. Focuses on postwar period. Students read/see plays.

LNDN 3333. Understanding Modern Britain. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to social/cultural differences between Britain and the United States. British class/culture, monarchy/aristocracy, education system, media.

LNDN 3342. European Economic History. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
European economic history, 1000 AD to today. Industrial revolution, development of capitalism from feudalism. Reasons Europe took world technological lead during Middle Ages. Factors affecting economic growth, prosperity, and technological change.

LNDN 3343W. Post War Popular Culture. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
London as center for international popular culture, from WWII to present.

LNDN 3355. London Through Internships. (; 3-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
British work and social structure. Cross-cultural issues surrounding integration into workforce. Internships from various fields of study.

LNDN 3375. Global Internship Course: London. (3-6 cr. ; Student Option; Every Fall, Spring & Summer)
3 Credit Course: The Global Internship Course (GIC) provides a unique and innovative opportunity for students to engage in an internship (and living abroad experience) while supported by academic in-class and online educational sessions to further develop their personal and professional skills while earning academic credit. GIC students also partake in out-of-class guided and self-guided activities and field studies that have been devised to enable students to become more comfortable with, and knowledgeable of, their internship locations/neighbourhoods. Furthermore, a day-long field trip illustrates how socio-political and economic factors, such as the effects of housing costs in global cities, necessitate commuting and changing work practices such as flexible working hours and working remotely that embody best practice in well-being. Field studies vary depending on location and may also include a focus on, for example, corporate social responsibility and sustainability. The GIC fits in with CAPA?s philosophy and practice of enabling students to learn about the social and cultural context of their internship placement and the host region and country, as well as other GIC themes, through comparative global analysis. Where appropriate, this analysis will be facilitated through a small selection of CAPA Masterclasses given by leading professionals from a diverse range of fields. The in-class active learning approach gives students the opportunity to discuss and analyse theories and models of work, organisational behaviour, and management in a cross-cultural context. 6 Credit Course: The Global Internship Course (GIC) provides a unique and innovative opportunity for students to engage in an internship (and living abroad experience) while supported by academic in-class and online educational sessions to further develop their personal and professional skills while earning academic credit. GIC students also partake in out-of-class guided and self-guided activities and field studies that have been devised to enable students to become more comfortable with, and knowledgeable of, their internship locations/neighbourhoods. Furthermore, a day-long field trip illustrates how socio-political and economic factors, such as the effects of housing costs in global cities, necessitate commuting and changing work practices such as flexible working hours and working remotely that embody best practice in well-being. Field studies vary depending on location and may also include a focus on, for example, corporate social responsibility and sustainability. The GIC fits in with CAPA?s philosophy and practice of enabling students to learn about the social and cultural context of their internship placement and the host region and country, as well as other GIC themes, through comparative global analysis. Where appropriate, this analysis will be facilitated through a small selection of CAPA Masterclasses given by leading professionals from a diverse range of fields. The in-class active learning approach gives students the opportunity to discuss and analyse theories and models of work, organisational behaviour, and management in a cross-cultural context.

LNDN 3412. British Broadcasting Today. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to international broadcasting. Social, cultural, and political conditions that have created selected world broadcasting systems. Focuses on broadcasting system of host country. Current system trends, governmental relationships, administration, domestic/foreign programming.

LNDN 3432. Western European Government and Politics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Comparative framework. Assumes that West European states maintain types of institutions/ processes in common (e.g., legislatures, parties, elections) but that country-to-country institutions/processes are distinct. Reasons for differences, impact that such diversity has on course of politics as east/west divisions dissolve. Focuses on Great Britain.

LNDN 3500. CAPA Seminar in London. (3 cr. [max 6 cr.] ; Student Option; Every Summer)
Study abroad course

LNDN 3501. Telling the Story - London. (1 cr. [max 2 cr.] ; Student Option; Every Summer)
Study abroad course

LNDN 3523. Theatricality: Understanding the Possibilities in Theater. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
In-depth understanding of art of theater via survey of historical influences, changing styles/ approaches to theater. Concept of theatricality.

LNDN 3524. Theatre Production Management. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Lecture/seminar from professional theatre practitioner on their job specialization. Structure of theatrical organizations. Development/ marketing of theatrical productions. Wider factors that influence theatrical organizations/ productions. Workshops. Visits to various venues to see how they operate.

LNDN 3530. Ethical Issues and the Media. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Principal ethical issues facing print/broadcast journalism. Practical dilemmas, moral framework. Real time arguments that arise in media coverage of matters of public controversy. Regulation, codes of practice. Case studies, visits, guest lectures.

LNDN 3531. Advertising and Marketing in Britain. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Forms of advertising and public relations techniques used by organizations to communicate with stakeholders. Consumer

motivation/appeal. Media structures, effectiveness. Target audiences. Print/ broadcast production, budgeting and promotion mix planning. Students design, cost, and implement an advertising campaign, and project the likely success rate.

LNDN 3532. Visualizing Britain: Film and Television Documentaries. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Canon of British film/television d00ocumentary from end of the 19th century to beginning of 21st Century. Drama-documentaries tackling/ attracting major public controversies.

LNDN 3533. Women in Britain in the 21st Century. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Momentous changes in women's lives during 20th Century. Impact of two world wars, economic dislocation/recovery, revolutions in colonial states, super power rivalry, proxy wars, end of cold war, new international alliances/ collectivities.

LNDN 3534. Criminal London: Aspects of Crime and Criminal Justice in Britain. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Late Middle Ages, Tudor/Stuart periods. Eighteenth, nineteenth, and twentieth centuries. Evolution of courts/criminal procedure. Debates, including death penalty and jury system. Visits to courts and places of interest.

LNDN 3536. Child Development in a British Context. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Scio-cultural approach to contemporary issues of children?s development. How life in the UK shapes children?s development. Early attachments. Development of the self. Emergence of consciousness. Role of play. Origins of disturbing behavior.

LNDN 3613. Analyzing and Exploring the Global City: London--Modernity, Empire, and Globalization. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3614. Citizenship and Gender in Modern Europe. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3615. Urban Underworlds in Medieval and Early Modern London: A Literary Exploration. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3616. Global Mental Health Professions: A Comparison of U.S. and U.K.. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

LNDN 3650. Research Methods: Directed Research Project - London. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course provides undergraduate students with the opportunity to undertake a research project in the context of their international education experience. Students opting for this course will be guided towards opportunities recommended by CAPA and determined by local resources and expertise. In most cases, CAPA will define potential projects generated by senior academic staff and faculty on site and suggest relevant sources: students will apply to do those projects. This would not preclude student proposals or projects suggested by home universities for individual or group study. Students will be introduced to core research concepts and will develop research skills through designing, executing, writing, and presenting their own research project within frameworks designed by CAPA. The topics that students will explore will be consistent with their majors and their own individual interests but will exploit the overseas experience. A variety of research methods employed in geographical, historical, political, sociological, cultural studies, and digital humanities will be introduced that may be applied to multidisciplinary topics, including qualitative and quantitative methods, as well as mixed methods research as appropriate to students' research themes. In collaboration with their instructor, students will develop appropriate research methodologies that will engage with a range of local sources, as well as online resources. These will include archival documents such as official records, maps, and personal accounts as well as basic ethnographic techniques such as questionnaires, interviews, and oral histories. Students will also be introduced to contemporary social investigation and the use of artistic/fictional representations of place and environment, and the use of photographs and other multimedia sources as tools for analysis.

LNDN 3733. International Finance. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Focuses on Europe. International marketing strategies of European companies. Special features of European Common Market, business environment.

LNDN 3752. International Marketing. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Focuses on Europe. International marketing strategies of European companies. Special features of European Common Market and business environment.

LNDN 3753. International Economics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Comparative advantage, classical/neoclassical models, distribution consequences of trade. Resource endowments, technological gaps, economies of scale, product differentiation, location. Tariffs, quotas, other forms of intervention. Preferential trading arrangements.

LNDN 3754. Creative Writing. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Creative writing course for the Study and Internships in London program.

LNDN 3756. Topics in London. (; 3 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics course for the Study and Internships in London program.

LNDN 3757. British History in the 20th Century. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
British history course for the Study and Internships in London program.

LNDN 3758. International Business Environment. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Study abroad course on Study and Internships in London program.

LNDN 3759. Islam, Politics, and Britain: A Case Study of London's East End. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
Study abroad course.

LNDN 3975. Social Dynamics of London: Contemporary Issues Through Service-Learning. (; 3-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Study Abroad Course

Study Abroad in Montpellier (MONT)

MONT 1000. Intensive French Session Lower Division. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1001. Beginning French. (5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study Abroad Course

MONT 1002. Beginning French. (5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1003. Intermediate French. (5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1004. Intermediate French. (5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1151. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1152. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1153. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The

specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1154. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1155. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1156. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1157. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1158. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1159. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1251. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1252. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1253. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1254. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1255. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1256. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1257. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1258. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1259. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 1301. Intermediate French Grammar. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will help students to improve their written and oral skills in French and train them to develop an approach to various writing assignments. This is designed to broaden the range of options available to them for expressing themselves in the language.

MONT 1302W. Intermediate Academic Writing in French. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This class is designed to introduce students to the techniques and tools required for both academic and personal writing. Over the course of the semester, students will learn how to write a variety of different types of texts including: the description, the compte rendu universitaire, the journalistic portrait, and other textual genres.

MONT 1309. Intermediate French Conversation. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This class is built as a series of discussion sessions. Throughout group discussions about news and precise topics (gastronomy, French music, immigration) students will acquire basic vocabulary and learn more about social and cultural facts and French contemporary civilization. We will study topics such as immigration in France, the French social system, cinema, leisure and provide the students with basic information in everyday life. Learning will be based on listening and speaking with material such as songs, TV shows, and movie extracts. A vocabulary sheet will provide basic vocabulary about the topic studied. Focus will be put on correct vocabulary and pronunciation.

MONT 1401. Integrated Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1402. Integrated Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1403. Integrated Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1404. Integrated Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1405. Integrated Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1501. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1502. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1503. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1504. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1505. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1506. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1507. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 1601. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1602. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1603. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1604. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 1605. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3000. Intensive French Session Upper-Division. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MONT 3010. French Expression. (; 3-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3014. French Phonetics. (2-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3015. Advanced French Grammar and Communication. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3016. Advanced French Composition and Communication. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3017. French Communication. (; 1-2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3018. French Oral Communication. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3020. French Comprehension. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3021W. Love, Heresy and Betrayal in Medieval Literature. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MONT 3022. France and its Mediterranean Neighbors: A Relationship of Exchange. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MONT 3023. History of Theater. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MONT 3024W. Medieval French Literature: Arthurian Legends. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Who was King Arthur? How is it that a legendary figure from such a distant time still exists today in such a vibrant manner within the collective mind? From the Middle Ages to the present day in such popular works as George R.R. Martin's Game of Thrones, the myths and folklore surrounding the king have been ceaselessly renewed. Beginning with the pseudo-historical origins of Arthur and his knights in the old French literary tradition as depicted by Chr?tien de Troyes and in iconic works of the mati?re de Bretagne, continuing through to Jean Cocteau's 20th-century theatrical adaptations and ending with Alexandre Astier's wildly popular television series, Kaamelott, this course will seek to shed light on the popularity and the mystery surrounding le roi Arthur. Over the course of the semester we will explore the legendary material in detail, consistently comparing and contrasting contemporary works with their medieval forbears with the ultimate goal of understanding how these creations function within the socio-cultural framework.

MONT 3101. French Cinema. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3102. Southern French Civilization. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3103. French Culture and Heritage. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3104. French History of Art. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3105. Scientific French. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3106. French Literature and Oral Expression. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3107. French Literature. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3108. Southern French Literature. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3109. Business French. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3110. French for Science and Technology. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MONT 3119. Learning, Cognition, and Assessment. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed to provide students with the theoretical tools for learning (behaviorism, constructivism, and socio-constructivism) and to understand the link with specific teaching contexts. In addition, students will learn about various approaches to evaluating students and the notions behind competency acquisition. Finally, students will explore the relevant areas of the field of neurosciences with the goal of developing appropriate methodological tools for learning assessment.

MONT 3121. Cross-Cultural Perspectives on Language Learning. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This is an introductory and exploratory course to second language learning for teachers within two different contexts: the US and France/ EU. Firstly, it explores the nature of language through the study of its linguistic components. Next, second language acquisition theories are examined ? those which related to both children and adults. These theories of how one learns have influenced teachers and experts about how language should be taught in classroom. Different key developments in psychology such as behaviorism, founded by B. F. Skinner, which had an overreaching

influence on many domains including SLA will be explored. Subsequent research contributions to the field of second language learning by Canale and Swain (1980), Krashen (1980?s) and Chomsky (1950?s-present) will also be addressed. The effects of globalization since the end of the cold war has spurred new language learning initiatives within the Western World. The development of the European Union, the Schengen area, the Erasmus programs and the Bologna process have most certainly created needs/motivation for additional language learning. In the US, the proliferation of the Spanish language as well as Chinese and other foreign languages from immigration and a more interconnected world have also motivated policy-makers and educators to think about communication on a more multi-lingual level. Thus, this course aims to explore the political, social, economic and cultural reasons behind language learning initiatives by governmental institutions in the US, France and the greater European Union.

MONT 3151. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3152. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3153. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3154. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3155. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3156. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3157. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3158. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3159. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3211. Introduction to Elementary School Teaching. (3 cr. ; Student Option; Every Fall & Summer)
This course will provide students with the tools for becoming an effective teacher, by underlining and exploring certain areas of the field of pedagogy. Major topics include: ? Exploring the field of teaching foreign languages (with focus on English as a Foreign Language) ? Underlying principles related to how teachers learn to teach ? Pedagogical theories ? Personal values impacting the work of a teacher and ethical guidelines for the teaching profession ? Schools and the teacher?s world of work ? Teaching as a career development

MONT 3212. Teaching Practicum. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Under the supervision of University of Montpellier education faculty, students participate in a substantive teaching practicum in the English classroom in the local Montpellier schools. Students are also supervised and mentored by the English teacher in the local school. Group reflection meetings and one-on-one feedback from the University of Montpellier faculty provide context and mentoring.

MONT 3213. Comparative Education and Pedagogy. (3 cr. ; Student Option; Every Fall & Summer)
This course compares educational practices in the United States and in France. Major topics include: the beliefs, practices, and relationships that shaped human experience over time, methods and concepts employed in producing historical knowledge, how to do the interpretive work that makes meaning out of historical materials, and finally uses limitations of certain primary resources.

MONT 3251. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3252. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3253. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3254. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3255. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3256. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study

Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3257. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3258. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3259. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 3301. French Grammar and Methodology. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3302. Civilization of the South. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3303. Internship. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3304. French Translation 1. (; 1.5 cr. [max 3 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3305. Literature of the Fantastic. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3306. Seminar in French Politics and Culture. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3307. France from All Sides. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3308. French Art History. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3309. French Conversation. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3310. Advanced French Grammar and Translation. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3311W. La France Mosaique: Perspectives on Contemporary France. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3312. Contemporary French Civilization. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3313. Masculine/Feminine: France through the Lens of Cinema. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3401. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3402. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3403. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3404. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3405. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3406. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3407. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3408. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3409. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3410. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3411. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3412. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3413. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3414. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3415. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3416. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3417. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3418. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3419. Integrated Course. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3501. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3502. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3503. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3504. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3505W. Writing in French: Tools and Techniques. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
This class is designed to introduce students to the techniques and tools required for both academic and personal writing. Over the course of the semester, students will learn how to write a variety of different types of texts including: the description, the compte rendu universitaire, the journalistic portrait, and other textual genres. The course consists of an analytic component in which students will be asked to study a text corresponding to a specific style. Students are then asked to explore the writing techniques employed in each type: reformulation, synthesis,

rhetorical figures, persuasive language, expressing an opinion via judgment or values, impersonal language, inverted questioning of the reader, etc. and subsequently write in those styles. Students will be expected to complete numerous writing assignments during the semester. These exercises will be collected and graded on a regular basis, with the possibility for students to revise and improve each project. Course objectives include: learning how to write different types of documents, with different content, using different styles, applying the knowledge acquired in the grammar/methodology course, mastering the stylistic tools and techniques for writing in French (e.g., the use of hyperbole, metaphor, personification, diction, symbolism) acquiring the ability to think in French and write directly in the target language without translating.

MONT 3506. Directed Research. (; 1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3507. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3508. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3509. Special Course for Americans. (; 0-10 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

MONT 3601. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3602. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3603. Institute Course. (; 0-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3604. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3605. Institute Course. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3650. Topics in French Culture. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3701. Sports and Culture in France. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

MONT 3801. Comparative Business Environment: France, Europe and the US. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

MONT 3802. Global Business and Industry: France at the Crossroads. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will examine similarities and differences among US, French and global business and industry environments and cultures. Topics will include the European Union (EU), as well as institutional, political, legal and socio-cultural factors at work in the contemporary business and industrial landscape. Students will learn and examine various contexts in business, education, workplace culture, and career pathways and options in France and abroad.

MONT 3886. Community Engagement in Montpellier. (CIV,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will explore the historical, sociological, and political context of the French community but also in relation to Europe and with a comparison with the American system. It will provide an opportunity for students to reflect on their community engagement in the host country environment. Students will engage in charities/French schools and then share their experience in a classroom. They will discuss topics linked to French society at large, approaching diverse subjects such as the youth in French society, the way the education system works in France and how it differs from the US, the French social system, the concept of ?la?cit?? (secularism) in France, the history of immigration from the 19th Century until today with the new waves of immigrant population, and race and gender issues. Students will have a closer look at French charity organization, NGO, and see how they work here in France. They will also examine leadership values in their country and see how they can adapt and develop them in their new environment. This course and students' engagement in the community will deepen their understanding of the host country cultural context and will lead them to critically examine their own worldviews. Topics explored will include ethic and social responsibility, leadership, French social systems, multiculturalism in the French society, place of secularism (la?cit?) in the French society, history of immigration, and gender equality.

MONT 4151. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4152. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4153. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4154. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4155. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4156. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4157. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4158. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4159. University Paul Valery Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study

Abroad in Montpellier program to represent a course taken at University Paul Val?ry. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4251. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4252. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4253. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4254. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4255. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4256. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4257. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4258. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

MONT 4259. University of Montpellier Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on all LAC programs and tracks related to the Study Abroad in Montpellier program to represent a course taken at the University of Montpellier. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

Study Abroad in Sydney (SDNY)

SDNY 1101. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 1102. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 1103. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 1104. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 1105. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 1201. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 1202. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 1203. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 1204. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3002. Art Down Under: From the Dreamtime to the Present. (; 3 cr. ; Student Option; Every Fall & Spring)
Works of art produced during the last centur. Controversial contemporary Aboriginal art. Major 20th century art movements in relation to advances in technology, historical events, and sociological changes.

SDNY 3003. Australian Cinema: Representation and Identity. (; 3 cr. ; Student Option; Every Fall & Spring)
Personal/collective identity via film narratives. Extent to which Australian films reflected/ determined Australian identities. What it means to be Australian. Concepts of national identity, imagined community.

SDNY 3004. International Business and Trade: Australia and the Pacific Rim. (; 3 cr. ; Student Option; Every Fall & Spring)
Establishment/growth of Australia's contemporary economic structure. How it relates to history of Australia's relationship with Asia. Dynamic of Australian economy, policies it faces. Changing context of Australia's identity and its political/economic policies toward Asia. Role of wars. Labor market. Immigration.

SDNY 3006. Learning Through Internships in Sydney. (; 3-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Internship course for Sydney program.

SDNY 3007. The Aboriginal Experience: An Anthropological View. (; 3 cr. ; A-F only; Every Fall & Spring)
Trends in contemporary Australian society. Emphasizes struggles of indigenous peoples.

SDNY 3008. Understanding Australia from a Sociological Perspective. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)

Sociological analysis of peoples, movements, and contemporary issues. Perspectives between culture and society. Constructions of Australian identity. Notions of ethnicity, gender, migration, crime, and the media.

SDNY 3009. Human Resource Management in the Australia/Pacific Rim Context. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall & Spring)
How Australian and Pacific Rim companies are attempting to achieve competitive advantage in domestic/international markets through HRM. Structural changes HRM is undergoing in Singapore, Hong Kong, and Japan. Increased responsibility of line managers for HRM. Talent/performance/industrial relations management.

SDNY 3011. Australian Government and Politics in the Pacific Rim. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
History, concepts, and structures of politics/government in Australia. Debates, problems, and changes in relation to Pacific Rim. Discussing these issues critically.

SDNY 3012. Intercultural Communication: Theories, Practices, Factors. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Communication between people from different racial, ethnic, and cultural backgrounds within Australia, including Aboriginal, and immigrant populations. Theory/research in intercultural communication. Improving human interaction in study-abroad environment and international contexts.

SDNY 3013. Analyzing and Exploring the Global City: Sydney. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3014. Australian History: Aboriginal History to Colonization--Current Issues in Historical Perspective. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3015. International Marketing. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3016. Australian, Asian and Pacific Literatures. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3017W. Writing the City - Sydney. (WI; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3018. Advertising and Promotions. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3019. Advertising and Society. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3020. Indigenous Peoples and Modernity: Culture, Rights and Development in a Globalizing World. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3021. International Finance. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3022. International Economics. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3023. International Dimensions of Organizational Behavior. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3024. Global Workforce Management. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3025. Managing Global Supply Chains. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3026. People, Place and Culture: Environmental Debates in Australia, New Zealand and the Pacific. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3027. Investment Management. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3028. Gender, Culture and Society. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3029. Campaigning for Change: Advocacy, Activism and Policy in the Digital Age. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

SDNY 3030. Project Management Practicum. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The Project Management Practicum enables students to apply the principles and practices of project management learned in the Project Management course to a project conducted in an organization by working through the design, implementation, monitoring, completion and evaluation stages of project management for the project. This practicum will run in a primarily concurrent fashion with the Project Management course?the two combine for a total of 90 hours during the intensive program. The two courses (Project management course/ Project Management Practicum) plus an internship form a track, however each course can be separately taken.

SDNY 3031. Skills and Challenges of Project Management. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The project management course is designed as an introductory program specifically targeting students who intend to pursue careers in which the management of projects and/or programs is an area of responsibility. The course is designed to provide potential project managers with a systematic, structured framework and processes for the management of projects through the design, implementation, monitoring, completion and evaluation stages of project management.

SDNY 3032. Sports in Australian Society. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Sports hold a central role in the development of the Australian character and identity, through the interaction with the expanse of the new environment of the early settlers, evolving during the colonial era of the nineteenth century. Sports helped forge and provide a focus for Australian nationalism whether that be individual achievements or as a team, projecting Australians internationally on the global sporting stage. This course studies sports in Australian culture; the historical context through to its importance in today?s Australian society; sports as a reflection of the masculine mono culture; Australian identity of 19th Century and early 20th Century through to diversity of modern Australia multi-culturalism; and indigenous recognition and social structures will be studied. Themes covered in this course include volunteerism, gender, race, ethnicity, sexuality, amateurism and professionalism, globalization, integrity in sports (drugs in sports, influence of gambling on results, gene manipulation, and bio medical enhancements), trends and challenges of the future of sports, including doping in sports, rise of corporatization of sports, innovation and technology impact on sports, and the impact on Australian sports of the current ?Asian Century.?

SDNY 3033. Sports Management. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course provides undergraduate students with the critical understanding of the theories, concepts, knowledge and skills for mangers in commercialized and community-based sports in the Australian context. The course considers the ranges of challenges facing the 21st-Century sports manager including a complex sociocultural environment, competitive business markets, managing a range of key stakeholders, the future of sports management, and strategic planning to meet future sporting organizations objectives. The course also evaluates how public policy, sports governance, and legislative requirements impact the management of sporting organizations. Finally, the course examines the wider social utility of sport in Australia, such as its role in community and the forming of national identity, as an opportunity for social improvement and general community well-being.

SDNY 3034. Sports Marketing. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course examines in detail the various techniques and strategies of sports marketing. The issue of professionalism and the corporatization of sport will be addressed. The focus on the necessity of securing various revenue streams including sponsorships, investment opportunities, government grants and fundraising potential of individuals, teams, clubs and facilities in the broad arena of sport. Students will examine the promotion of sports through various channels, including traditional media and the rise of digital marketing in

its various forms. The ability to develop and implement marketing strategies and plans to present to individuals or organizations will be based around practical application using Australian case studies.

SDNY 3035. The Australasian Nightmare: Horror Films and the Traumatic Imagination on the Pacific Rim. (3 cr. ; Student Option; Every Fall, Spring & Summer)
The classic American horror film is derived from a gothic heritage, an inheritor of a European context and its tropes: the disintegration of civilization through wars, disease, economic collapse, and associated social traumas. The horror that the current, post-9/11 generation has produced is notably different; it plays upon central themes that derive from an Australasian context, driven by the recent horror films of Australia, Japan, and Korea. These influential films have been made and distributed outside of an American context but then repackaged for the West in remakes and variations that awaken an American audience to themes of horror that are decidedly non-European in substance. This course will examine these films, comparing and contrasting European and Australasian tropes for horror as well as their reflection of and impact on society.

SDNY 3036. Race and Ethnicity in Australia and the US. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course examines and compares race and ethnicity in Australia and the U.S. Similarities and differences in racial/ethnic historic and current conditions, causes, consequences, and policies in the two countries will be identified. By the end of the course, students will have greater understanding of the role of race and ethnicity in determining group and individual opportunities, restrictions, and life experiences. Students will become aware of the continuing importance of cultural and political factors in the salience of race/ethnicity in the two societies. Solutions for racial problems will also be emphasized.

SDNY 3037. Australia in the Global Political Context. (GP; 3 cr. ; Student Option; Every Fall & Summer)
This course examines the government and politics of Australia and Australian engagement in the Asia-Pacific region. It does so by surveying similarities with and differences from the North American democratic model and by examining Australia?s substantial and abiding interests in the Asia-Pacific region. By the end of the course, students will be aware of the importance of geographical distance and location in the Australian story. Students will also be aware of the continuing importance of cultural and political inheritance in the development of Australian public and foreign policy. Students will be encouraged to make comparisons with the US system of government and politics.

SDNY 3038W. Immigration: People Moving, Moving People. (CIV,WI,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course will explore the causes and consequences of migration for communities, personal identities, national identities, politics, ethics, and the environment. The various reasons for people-moving and moving people across borders will be examined, as will the myths and controversies involved. How notions of belonging, citizenship, nationality, nationhood, and ?the other? are constructed, proliferated, and manipulated will be key themes throughout the course. Case studies will be drawn from both Australian and international examples, which field trips will supplement. Grades will be based on class and online participation, evidence of reading and independent research, and assessments both written and oral.

SDNY 3039. Abnormal Psychology. (SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course provides a contemporary overview of the psychological, biological, and experiential factors thought to influence human mental disorders. It will address questions such as What is ?abnormal?? What causes mental illness and how do we treat them? Each week students will explore a different disorder (for example, depression, anxiety, eating disorders, schizophrenia) and discuss the symptoms, causes, and empirically supported treatments.

SDNY 3041. Resilient Cities. (ENV,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course is an introductory course on urban resilience and concepts in sustainability and its principles and the sustainable development of cities in the global, regional, and local contexts. The course will cover the environmental, socio-economic, and structural problems of contemporary cities and their consequences on natural systems and built communities. It provides a framework to examine the challenges of urbanism, issues facing cities, and an opportunity to evaluate and explore ? solutions.?

SDNY 3042W. Writing for Environmental Advocacy. (ENV,WI,GP; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course focuses on writing in response to the natural environment, primarily as a tool to raise awareness of environmental challenges and to advocate for ways to meet those challenges. We?ll read a variety of voices and styles of advocacy writing, always with a strong focus on the craft of language: How does the writing reach its target and accomplish its goal? What makes the writing persuasive? Students will practice several modes of advocacy writing, via several shorter assignments, and the writing will be a central text of the course; that is, we will investigate and critique student writing in much the same we do the assigned published pieces. Students will devote much of the second half of the term to researching and writing a first-person article and presentation focusing on a specific environmental problem and advocating for a potential solution/s.

SDNY 3043W. Sports as Soft Power. (GP,WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
This course examines sports as soft power (persuasion, influence, and attraction) in the attempt to bridge communities and cultures and on the local, national, and global stages. Case studies demonstrate the attraction and effectiveness of sports as a communication strategy utilized by local, national, and international governments and NGOs as part of a strategic communication plan, as well as its role in spontaneous grassroots movements. Critical to our studies is the appreciation that sport may challenge/reinforce social and cultural values at the local, national, and international levels.

SDNY 3101. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 3102. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 3103. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 3104. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 3105. University of Technology Sydney Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Sydney study abroad program to represent a course taken at the University of Technology Sydney. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

SDNY 3201. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3202. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3203. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3204. Integrated Course. (1-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

SDNY 3375. Global Internship Course: Sydney. (3-6 cr. ; Student Option; Every Fall, Spring & Summer)
3 Credit Course Option: The Global Internship Course (GIC) provides a unique and innovative opportunity for students to engage in an internship (and living abroad experience) while supported by academic in-class and online educational sessions to further develop their personal and professional skills while earning academic credit. GIC students also partake in out-of-class guided and self-guided activities and excursions that have been devised to enable students to become more comfortable with, and knowledgeable of, their internship locations/neighbourhoods. Field studies vary depending on location and may also include a focus on, for example, corporate social responsibility and sustainability. The GIC fits in with CAPA's philosophy and practice of enabling students to learn about the social and cultural context of their internship placement and the host region and country, as well as other GIC themes, through comparative global analysis. At times, this analysis will be facilitated through a small selection of CAPA Masterclasses given by leading professionals from a diverse range of fields. The in-class active learning approach gives students the opportunity to discuss and analyze theories and models of work, organizational behavior, and management in a cross-cultural context. A variety of teaching and learning activities will be used, for example: lecture, workshop, discussion, informal and formal presentations, self-guided and guided research, and mock (recorded) interviews. The assessment mechanisms are all designed to support learning, using the internship and living abroad experience as a vehicle. Above all, the in-class CAPA sessions give students the opportunity to listen to individual experiences, compare and contrast activities 6 Credit Course Option The Global Internship Course (GIC) provides a unique and innovative opportunity for students to engage in an internship (and living abroad experience) while supported by academic in-class and on-line educational sessions to further develop their personal and professional skills while earning academic credit. GIC students also partake in out-of-class guided and self-guided activities and excursions that have been devised to enable students to become more comfortable with, and knowledgeable of, their internship locations / neighbourhoods. Field studies vary depending on location and may also include a focus on, for example, corporate social responsibility and sustainability. The GIC fits in with CAPA's philosophy and practice of enabling students to learn about the social and cultural context of their internship placement and the host region and country, as well as other GIC themes, through comparative global analysis. At times, this analysis might be facilitated through a small selection of CAPA Masterclasses given by leading professionals from a diverse range of fields. The in-class active learning approach gives students the opportunity to discuss and analyze theories and models of work, organizational behavior and management in a cross-cultural context such as Australia's historical place within a pan Asian market. A variety of teaching and learning activities will be used, for example: lecture, workshop, discussion, informal and formal presentations, self-guided and guided individual and team research, and mock (recorded) interviews. The assessment mechanisms are all designed to support learning, using the internship and living abroad experience as a vehicle. Above all, the in-class and supplementary on-line CAPA sessions give students the opportunity to listen to individual experiences, compare and contrast activities with others, and consider the experience in terms of their personal and professional development ? at the beginning we focus on self-reflection, and at the end of this process we challenge each student to focus on self-projection. At its core, GIC provides an opportunity for students to unpack, synthesis and articulate (the value of) their learning.

SDNY 3500. CAPA Seminar in Sydney. (3 cr. [max 6 cr.] ; Student Option; Every Summer)
Study abroad course

SDNY 3501. Telling the Story - Sydney. (1 cr. [max 2 cr.] ; Student Option; Every Summer)
Study abroad course

SDNY 3895. Directed Research Project for Study Abroad. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

Study Abroad in Venezuela (VENZ)

VENZ 1001. Beginning Spanish. (; 5 cr. ; A-F only; Every Fall, Spring & Summer)
Essential Spanish for real-life, everyday situations. Stresses communicative competency. Simultaneous work on reading, speaking, listening, and writing.

VENZ 1002. Beginning Spanish. (; 5 cr. ; A-F only; Every Fall, Spring & Summer)
Reading, speaking, listening, writing. prereq: Span 1001

VENZ 1003. Intermediate Spanish. (; 5 cr. ; A-F only; Every Fall, Spring & Summer)
Spanish grammar, conversation. prereq: Span 1002

VENZ 1004. Intermediate Spanish. (; 5 cr. ; A-F only; Every Fall, Spring & Summer)
Spanish grammar, conversation. prereq: Span 1003

VENZ 3015. Spanish Composition and Communication. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Development of communication skills. Comprehending written/spoken texts. Speaking, reading, and writing in Spanish, beyond intermediate level.

VENZ 3016. Advanced Spanish Conversation and Composition. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Reading, listening, writing.

VENZ 3021. Advanced Communication Skills. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Challenging points of grammar. Written communication of various styles and in various fields.

VENZ 3022. Advanced Business Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Challenging points of grammar. Written communication of various styles and in various fields of business.

VENZ 3040. Cross-Cultural Communication in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Cultural differences when dealing with people from different cultures. Issues related to cultural diversity and cross-cultural understanding. prereq: Two yrs college-level Spanish

VENZ 3041. International Economics in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Theories of international trade, commercial policy, balance of payments, and international monetary issues. Comparative advantage, exchange rates, protectionism, open-economy, fiscal/monetary policies, common markets, free-trade areas.

VENZ 3104W. The Art of Reading Literary Texts. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Major current theoretical approaches to literary texts. Contemporary categories of analysis/ methodology. Literary sociology, psychological critique, semiology, comparative literature.

VENZ 3106. Latin American Art. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Panoramic view of Latin American art from pre-historic times to the present day. Emphasizes Venezuelan art production in its historical, political, and social context and relating it to other Latin American countries.

VENZ 3107W. Introduction to the Study of Hispanic Linguistics. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Concepts and operative terms of linguistics, nature/organization of language. Emphasizes phonological/grammatical analysis. Origin/ nature of linguistic transformation. prereq: Two yrs college-level Spanish

VENZ 3108. The Spain of Cervantes' Don Quixote: History and Fiction. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Analysis of Don Quixote as crossroad of literary eras/genres, visions of the world, and attitudes towards life, and as synthesis of styles and an encounter of two centuries. prereq: Adv-lev written/spoken Span

VENZ 3200. Field Botany in the Andes in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to flora of Venezuelan Andes, its diversity, ecology, and geographical distribution. Morphology, identification of plant

characteristics, ethno-botany. Natural history of Andean vegetation. Fieldwork assignments.

VENZ 3251. Spanish-American Literature: Aspects of Prose and Fiction. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Several writers whose work has become essential for contemporary Spanish American literature. Critical reading of various works. Background knowledge of authors, and of their work and historical context. prereq: Two yrs col-lev Span

VENZ 3261. Natural Resource Economics (in Spanish). (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Basic economic concepts most relevant to natural resources, factors affecting them. Property rights, conservation, regulations, government policy, and evaluation of resources.

VENZ 3262. Natural Resource Development. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Organization/development of agriculture/mining in Latin America, from colonial era to present. Socio-political/economic ramifications of natural resources, their exploitation covering several countries.

VENZ 3263. Sustainable Tropical Agriculture (in Spanish). (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Economics of tropical agriculture development. Potential for developing world trade and for improving standards of living in areas dependent on production of tropical agricultural products.

VENZ 3401. History of Venezuela. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Survey of Venezuela's historical processes, fundamental historical problems. Conquest, colonization, independence, 19th/20th centuries. prereq: Two yrs col-lev Span

VENZ 3402. Curriculum and Material Development. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Applications of theories, principles, and current research related to second language acquisition, instructional techniques, and materials relevant to development of TESOL curriculum. Emphasizes teaching students whose English proficiency is limited.

VENZ 3403. Applied Linguistics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Applications of theories, principles, and current research related to second language acquisition. Instructional techniques/materials relevant to development of TESOL curriculum. Emphasizes teaching students whose English proficiency is limited.

VENZ 3404. Testing and Evaluation of TESL. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Discussion, review, and critique of instruments of evaluation for English language acquisition. Selection/development of assessment instruments valid for (a) placing students at appropriate levels, (b) evaluating progress toward goals, and (c) grading promoting students.

VENZ 3405. Methods of Teaching English Proficiency. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Identifying/applying major TESL methodologies to needs of students with various cultural/ language backgrounds, ages, and learning styles. Emphasizes differentiating teaching English to native speakers and to speakers of other languages.

VENZ 3407. Tropical Ecology in Spanish. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Function of tropical ecosystems as related to natural vegetation. Different biological/ environmental dynamics of area between Tropic of Capricorn and Tropic of Cancer. Emphasizes American/Venezuelan tropical ecosystems.

VENZ 3410. Cultural Anthropology. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Diversity/universality of culture from anthropological point of view. Concepts of culture. Representative cases that demonstrate human adaptation in its diverse variations. Diversity of values/lifestyles. Aspects of pre-Hispanic and contemporary Venezuelan Andean culture.

VENZ 3480. Caribbean Literature. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Aspects of Caribbean culture related to development of literature of the region. Caribbean literature within context of Latin American literature. Analytical strategies for studying texts. prereq: Two yrs col-lev Span

VENZ 3500. History of the Spanish Language. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Evolution of the Spanish language starting from vulagate Latin and viewing its major synchronic states. Languages that influenced the formation of Spanish. Popular vocabulary items, educated/semi-educated language features.

VENZ 3510. Latin American Politics and Civilizations. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Panoramic study of Latin American culture. Elements of global politics. Latin America from cultural point of view. Development of Latin American civilization beginning with conquest/ colonization. Formation of Latin American political systems. prereq: Two yrs col-lev Span

VENZ 3511. Film Criticism and Appreciation in Latin America. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Latin American culture through eyes of outstanding Latin American filmmakers. Aesthetics/language of cinema. Emphasizes four most important Latin American film industries: Mexico, Cuba, Argentina and Venezuela. Overview of other productions. prereq: Two yrs col-lev Span

VENZ 3512W. Spanish-American Civilization: Modern Latin America. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Summary of history of countries of Latin America. Pre-Hispanic indigenous cultures, principal features of colonial society. Analysis of socio-cultural situation of Latin American countries in 20th century. Emphasizes artistic developments. prereq: Two yrs college-level Spanish

VENZ 3513. Latin America and Cultural Discourse. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Essential Latin American texts on culture with relation to important works on universal culture. How to distinguish between various historic/ cultural currents. Contributions of major Latin American thinkers, diverse sources of principal/ cultural systems of Latin America. prereq: Two yrs col-lev Span

VENZ 3520. Geography of Venezuela in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Venezuelan geography in its international context. Outstanding physical features. Socioeconomic patterns. prereq: Two yrs college-level Spanish

VENZ 3521. Education in Venezuela. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Nature/problems of education in Venezuela. Historical precedents, evolution of the system. Philosophical, cultural, and pedagogical assumptions of national education in Venezuela. The system in its current form. prereq: Two yrs col-lev Span

VENZ 3540. Folklore in Latin America in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Principal manifestations of folklore of various countries of Spanish America. Emphasizes process of syncretism. Original elements related to later influences. Development of folklore as historical process. Music, oral tradition. prereq: Two yrs college-level Spanish

VENZ 3590. Children's Literature. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Critical analysis of children's literature. Theoretical aspects from different points of view. Set of criteria for evaluating a variety of authors and their work. prereq: Two yrs col-lev Span

VENZ 3600. Spanish Linguistics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Present state of theory, research, and application of linguistics to Spanish speaking world. Variation and linguistical changes. Analysis of Spanish speech/writing modes.

VENZ 3604. International Finance in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
International financial environment. Tools/ techniques for international monetary issues. Functioning of foreign exchange. Capital/ money markets, portfolio diversification, multinational capital budgeting, import-export financing, direct investment, banking.

VENZ 3650. Cross-Cultural Management. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Strategies for overcoming cultural differences in business environment, from perspective of management. Issues of cultural diversity.

VENZ 3661. International Business in Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)

Problems faced by firms engaging in international activities. Major currents/patterns in contemporary international business. History, culture, commerce, exchange, markets, corporate strategies.

VENZ 3703. Psycholinguistics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Psycholinguistics as a science. Contemporary theoretical models explaining development/ acquisition of language. Concepts of language pathology. prereq: Two yrs col-lev Span

VENZ 3704. Sociolinguistics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Introduction to study of linguistic phenomena that are related to social factors. Language-society relationship in the Venezuelan environment. Builds on studies by linguists of Venezuela. prereq: Two yrs col-lev Span

VENZ 3705. Structure of Spanish: Phonology and Phonetics. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Theoretical background in phonetics. Practice in oral articulation. Differences between Spanish spoken in Spain and in Hispanic America. Emphasizes Spanish spoken in Venezuela. prereq: Two yrs col-lev Span

VENZ 3920. Venezuelan Literature. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Venezuelan literature, from 1950 to present. Different styles of literary expression. Principal authors, works, and literary groups.

Summer Study in Rome (ROME)

ROME 1001. Beginning Italian I. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Basic listening, speaking, reading, writing, and communication skills. Cultural readings.

ROME 1002. Beginning Italian II. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Basic listening, speaking, reading, writing, and communication skills. Cultural readings.

ROME 1003. Intermediate Italian I. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Conversation/comprehension proficiency. Reading/writing skills. Grammar review.

ROME 1004. Intermediate Italian II. (; 5 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
Conversation/comprehension proficiency. Reading/writing skills. Grammar review.

ROME 1200. Intensive Italian Language and Culture. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad.

ROME 1300. Italian for Design. (1 cr. [max 2 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 1500. Survival Italian. (1 cr. ; Student Option; Every Fall, Spring & Summer)
This course is designed as a survival language course with emphasis on developing the necessary language skills to handle the most frequent situations encountered while staying in Rome. It focuses on communication in everyday practical situations and aims at getting students started in learning Italian.

ROME 3001. Society, Citizenship, and Ethics in Post-Unification Italy. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Culture/identity from Italian historical perspective. Students visit Orvieto, a medieval hilltop town famous for its paintings, frescos, and 'underground city' of tunnels/passageways.

ROME 3002. Roman Art. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Uses Rome as a campus to address role of patrons, nationality of artists, and actual technical production of works of art. Students visit Pompeii, a city frozen in time that reveals the historical heritage of ancient Rome.

ROME 3003. Made in Italy. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
"Made in Italy" as brand and lifestyle. Lectures, site visits, development of a student group marketing plan. Students visit Castello Banfi Winery in Tuscany.

ROME 3004. Italian Communications: Popes, Politicians, and Popular Culture. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3005. The History of Art and Design in Italy: From Pompeii to Present. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3006. Community Engagement in Rome. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3007. Design Theory, Technology, and the Environment. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3008. Sustainable Foods of Italy. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3009. Italian Cinema. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3010. Neighborhoods of Modern Rome. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3011. Roman Design Studio. (; 6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3012. Intensive Italian Language and Culture. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3013. Internships in Rome: A Comparative Approach to the Italian Workforce. (3-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3014. Sport and Society in Modern Italy. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

ROME 3191. Materials and Design: Integrity and Innovation. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3192. Remapping of a Neighborhood for Students of Architecture. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3193. Exploring Identity: Community Design for Marginalized Groups. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

ROME 3194. As if People Mattered: Architectural & Urban Lessons in the Eternal City. (2 cr. [max 4 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

Supply Chain and Operations (SCO)

SCO 2550. Business Statistics: Data Sources, Presentation, and Analysis. (; 4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Data analysis, basic inferential procedures, statistical sampling/design, regression/time series analysis. How statistical thinking contributes to improved decision making. prereq: [Math 1031 or equiv], at least 30 cr

SCO 3001. Supply Chain and Operations. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Managing the operations function within manufacturing and service organizations, and across the supply chains of these organizations. The supply chain is the set of organizations and the work that they complete to collectively create customer-valued goods and services. Course emphasizes decision making in work processes, including decision related to managing processes, quality, capacity, inventory, and supply chain activities. Quantitative and qualitative methods are used for improving management of operations.

SCO 3041. Project Management. (; 2 cr. ; A-F or Audit; Every Fall)
Principles and methods useful for planning and controlling a project, including development of project plan, resource planning and scheduling, and project monitoring and control. Selected computerized packages are studied, including PERT and CPM, and examples of different types of projects from manufacturing and service industries are used. prereq: 3000 or instr consent

SCO 3045. Sourcing and Supply Management. (2 cr. ; A-F only; Every Fall & Spring)
Strategic/operational role of purchasing/supply. Supply management. Supplier-selection

criteria such as quantity, quality, cost/price considerations. Buyer-supplier relationships. prereq: 3001

SCO 3048. Transportation and Logistics Management. (; 2 cr. ; A-F only; Every Fall)
Linkages between logistics/transportation and marketing, operations, and finance. How different industries integrate logistics, warehousing, transportation, and information systems. prereq: 3001

SCO 3051. Service Management. (; 2 cr. ; A-F only; Every Fall)
Issues unique to managing service processes. Identifying service needs, designing services, and managing services. prereq: 3001

SCO 3056. Supply Chain Planning and Control. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Decisions/tradeoffs when directing operations of supply chain. Forecasting, capacity/production planning, just-in-time, theory of constraints, supply chain flows, enterprise resource planning, supply chain design. prereq: 3001 or instr consent

SCO 3059. Quality Management and Lean Six Sigma. (; 4 cr. ; A-F or Audit; Every Fall & Spring)
Process management from Quality Management and Six Sigma perspective. Managerial/technical aspects of improvement. Strategy, improvement tools/methods, Malcolm Baldrige Award, ISO 9000, Six Sigma. prereq: 3001 or equiv or instr consent

SCO 3072. Managing Technologies in the Supply Chain. (; 2 cr. ; A-F only; Every Spring)
Technologies and technological change within/between firms as opportunities for professional leadership. Selecting technologies, nurturing their adoption, and ensuring their exploitation. prereq: 3001

SCO 4065W. Supply Chain and Operations Strategy. (WI; 4 cr. ; A-F only; Every Fall & Spring)
Senior capstone. How to achieve/sustain competitive advantage through consistent decisions in manufacturing/service operations. Marketing/business strategy in global context. Vertical integration, capacity, facilities, technology/infrastructure. prereq: 3001, 3056, 3059, 4 [OMS or SCO] elective cr

Sustainability Studies (SUST)

SUST 3003. Sustainable People, Sustainable Planet. (ENV; 3 cr. ; Student Option; Every Fall & Spring)
Introduction to interdisciplinary Sustainability Studies minor. Scientific, cultural, ethical, and economic concepts that affect environmental sustainability and global economic justice. Key texts. Participatory classroom environment. prereq: Soph or jr or sr

SUST 3017. Environmental Justice. (DSJ; 3 cr. ; A-F only; Every Spring)
With a focus on understanding environmental justice, including interconnections between health, economic and environmental disparities, this course shows students how they can take action for sustainability. Students synthesize multiple disciplinary perspectives and participate in small group collaborative activities, service learning, and digital mapping, all related to contemporary challenges.

SUST 3480. Topics in Sustainability. (; 1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics in sustainability encompass special courses related to issues such as renewable energy, food and waste systems, sustainable planning, water and climate change.

SUST 3501. Environmental and Cultural Diversity in China. (ENV,GP; 3 cr. ; A-F only; Every Spring & Summer)
This Global Seminar takes place in southwest China's Yunnan Province, a region of natural beauty and home to 26 ethnic minority groups. The program explores how an emerging international ecotourism sector affects the livelihoods and culture of remote ethnic communities at the edge of the Tibetan plateau. The ecology of the communities the class will visit, which are among the most biodiverse in the world, will be a focus for the program. Spectacular snow-capped mountains, alpine meadows, river gorges and grasslands are present. The climate is moderate and the air is clean in this region of China. A trek to a village not accessible by road and a homestay with a Tibetan farm family will be highlights for students in the course.

SUST 4004. Sustainable Communities. (; 3 cr. ; A-F only; Every Fall & Spring)
Students synthesize multiple disciplinary perspectives and integrate insights gained from various approaches/methods. Concepts/scholarship related to sustainability. Applying knowledge/experience to real sustainability problems. prereq: [3003 or GLOS 3304, [jr or sr] in sustainability studies minor] or instr consent

SUST 4096. Sustainability Internship. (; 2-4 cr. [max 8 cr.] ; A-F only; Every Fall & Spring)
Four to ten hour per week internship experience related to a sustainability theme or approach, such as sustainable foods, green building, renewable energy or environmental justice. Intern in a nonprofit, governmental, educational or business organization, from choices provided or approved by instructor. prereq: Familiarity with sustainability concepts through academic work or other experiences

SUST 5480. SUST 5480 Topics in Sustainability. (; 1-4 cr. [max 24 cr.] ; A-F only; Every Fall, Spring & Summer)
Topics in sustainability encompass special courses related to issues such as renewable energy, food and waste systems, sustainable planning, water and climate change.

Sustainable Agricultural Syst (SAGR)

SAGR 4096. Professional Experience Program: Internship in Sustainable Agriculture. (1-3 cr. [max 6 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Professional experience in sustainable agriculture attained through supervised practical experience. Students create a learning agreement specific to their internship host and project, consulting with faculty advisers/hosts. This course meets the internship requirement for the Undergraduate Minor in Sustainable Agriculture. Prereq: Undergraduate minor in sustainable agriculture

Sustainable Systems Management (SSM)

SSM 1004. Sustainable Systems Management Orientation. (1 cr. ; S-N only; Every Fall)
Students will receive an introduction to the Sustainable Systems Management Major. They will learn about internships in the field and about career paths that they may follow. There will also be presentations and assignments on preparing resumes and finding jobs in this area. Graduates and professionals in the related fields of sustainable systems will present for the class. Combining course work and field trips, this class will provide students with the opportunity to meet their fellow students and to form a cohort of students with similar interests and career aspirations. prereq: None

SSM 2003. Systems Thinking: Development and Applications in Sustainability. (3 cr. ; A-F only; Every Fall)
This course will provide introduction to basic systems thinking fundamentals: defining a systems perspective about any situation or problem, solving problems with that perspective, describing and modeling problems, and designing and improving upon system solutions.

SSM 3093. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

SSM 3094. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

SSM 3301. Global Water Resource Use and Sustainability. (ENV; 3 cr. ; Student Option; Every Fall & Spring)
What is the value of clean water? Explore the many facets of water, earth's most abundant resource. Ponder the value water for you, society, a region or nation; the complexities of ownership and protection; the influence of culture and traditions; and potential impacts of climate change. Consider realistic and holistic solutions to water issues.

SSM 3503. Marketing of Bio-based Products. (; 4 cr. ; A-F or Audit; Every Fall)
Intro to marketing function as it relates to current/emerging bio-based products industries (building materials, paper, fuels, etc.). Product positioning, pricing, promotion, and channel management within strategic planning and environmental marketing management.

SSM 4407W. Sustainable Manufacturing Principles and Practices. (WI; 3 cr. ; A-F only; Every Fall)
In this course students will learn about ways in which companies are embracing sustainability in their strategy and operations to increase growth and global competitiveness, including manufacturing processes for major sustainable products and biobased products. This includes processes and approaches for environmental mitigation and "green" manufacturing, reduce industrial waste and emissions, environmental footprint, and associated costs through more efficient manufacturing practices and incorporate bio-based product formulation. Students will acquire a working knowledge of management policies, tools and techniques to improve operational and environmental performance. prereq: Junior/Senior Status, Introductory Chemistry or instr consent

SSM 4413. Systems Approach to Residential Construction. (; 4 cr. ; Student Option; Every Fall)
Dynamic/interrelated issues of energy, moisture control, indoor air quality in residential bldgs. Design, construction, and operational aspects for energy efficient, durable structure/ healthy living environment. Interaction between moisture and wood products within building system. prereq: Upper div or instr consent

SSM 4414. Advanced Residential Building Science. (4 cr. ; Student Option; Fall Even Year)
Theory, advanced applications for residential buildings. Focuses on heat/mass transfer. prereq: 2001

SSM 4416. Building Testing and Diagnostics. (; 2 cr. ; Student Option; Spring Even Year)
Theoretical basis for performance testing. Diagnostics applications for residential structures. Existing structures, retrofit/remedial applications. Digital differential pressure gauges, blower doors, airflow hoods/grids, duct pressure testing, infrared thermography. Hands-on equipment use, problem solving. prereq: 4413

SSM 4418. Advanced Building Science: Applications. (3 cr. ; A-F or Audit; Spring Odd Year)
A capstone applications course, where students will learn how to apply key building science principles (from SSM 4414/5414: Advanced Building Science: Fundamentals) to common building enclosure and mechanical system problems. Students will be guided to develop both qualitative and quantitative solutions for many common energy, moisture, and indoor air quality problems facing contemporary buildings. prereq: SSM 4414 or SSM 5414

SSM 4504W. Sustainable Products Systems Management. (WI; 3 cr. ; A-F only; Every Spring)
Concepts of new-product development and product management, their application to biobased products. prereq: Jr or Sr or instr consent

SSM 4506W. Sustainable Systems Management Capstone. (WI; 3 cr. ; A-F only; Every Spring)
This course provides students with an opportunity to conduct solutions-driven research in sustainable systems management. Students will work in groups on real-world problems that will require them to integrate the knowledge and skills they have developed in their previous coursework and internship experiences. Project topics will be solicited annually from industrial, corporate, governmental, and other external partners. All projects will require that students take an interdisciplinary systems thinking approach. Strong analytical and communicative skills will be emphasized and developed through iterative assignments. The course will be run by faculty teaching in the Sustainable Systems Management major. prereq: ESPM 3603 concurrent registration is required (or allowed) in Major seniors within two semesters of graduation.

SSM 5093. Directed Study. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
A course in which a student designs and carries out a directed study on selected topics or problems under the direction of a faculty member; eg, literature review. Directed study courses may be taken for variable credit and special permission is needed for enrollment. Students enrolling in a directed study will be required to use the University-wide on-line directed study contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed study counts towards CFANS major requirements.

SSM 5094. Directed Research. (1-4 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
An opportunity in which a student designs and carries out a directed research project under the direction of a faculty member. Directed research may be taken for variable credit and special permission is needed for enrollment.Students enrolling in a directed research will be required to use the University-wide on-line directed research contract process in order to enroll. Prereq: department consent, instructor consent, no more than 6 credits of directed research counts towards CFANS major requirements.

SSM 5407. Sustainable Manufacturing Principles and Practices. (3 cr. ; A-F only; Every Fall)
In this course, students will learn about ways in which companies are embracing sustainability in their strategy and operations to increase growth and global competitiveness, including manufacturing processes for major sustainable products and biobased products. This includes processes and approaches for environmental mitigation and "green" manufacturing, reduce industrial waste and emissions, environmental footprint, and associated costs through more efficient manufacturing practices and incorporate bio-based product formulation. Students will acquire a working knowledge of management policies, tools and techniques to improve operational and environmental performance.

SSM 5413. A Systems Approach to Residential Construction. (; 4 cr. ; Student Option; Every Fall)
Dynamic/interrelated issues of energy, moisture control, indoor air quality in residential bldgs. Emphasizes design, construction, and operational aspects to provide an energy efficient, durable structure, and healthy living environment. Interaction between moisture and wood products within building system.

SSM 5414. Advanced Residential Building Science. (; 4 cr. ; Student Option; Fall Even Year)
Building science theory, advanced applications for residential buildings. Focuses on heat/mass transfer. prereq: Grad student or instr consent

SSM 5416. Building Testing & Diagnostics. (; 2 cr. ; Student Option; Spring Even Year)
Theoretical basis for performance testing. Diagnostics applications for residential structures. Focuses on existing structures and retrofit/remedial applications. Digital differential pressure gauges, blower doors, airflow hoods/grids, duct pressure testing, infrared thermography. Hands-on sessions for equipment use, problem solving. prereq: Grad student or instr consent

SSM 5418. Advanced Building Science: Applications. (3 cr. ; A-F or Audit; Spring Odd Year)
This course is intended to be a capstone applications course, where students will learn how to apply key building science principles (from SSM 4414/5414: Advanced Building Science: Fundamentals) to common building enclosure and mechanical system problems. Students will be guided to develop both qualitative and quantitative solutions for many common energy, moisture, and indoor air quality problems facing contemporary buildings. prereq: SSM 4414 or SSM 5414

SSM 5503. Marketing of Bio-based Products. (; 4 cr. ; A-F or Audit; Every Fall)
Introduction to marketing function as it relates to current/emerging bio-based products industries (building materials, paper, fuels, etc.). Product positioning, pricing, promotion, and channel management within strategic

planning and environmental marketing management.

SSM 5504. Sustainable Products Systems Management. (3 cr. ; A-F only; Every Spring)
Concepts of new product development and product management and their application to bio-based products.

Swahili (SWAH)

SWAH 1221. Beginning Swahili, Semester I. (; 5 cr. ; Student Option; Every Fall)
Comprehension, speaking, reading, writing.

SWAH 1222. Beginning Swahili II. (; 5 cr. ; Student Option; Every Spring)
Continuation of skill development from 1221. prereq: 1221 or equiv

SWAH 3225. Intermediate Swahili. (; 5 cr. ; Student Option; Every Spring)
Readings of contemporary Swahili texts. Review of grammar and complex verb forms. Vocabulary, communication skills. prereq: 1 yr Swahili or equiv

SWAH 3226. Intermediate Swahili II. (; 5 cr. ; Student Option; Every Spring)
Continuation of skill development from 3225. prereq: 3225 or equiv

SWAH 3425. Advanced Swahili. (5 cr. ; A-F only; Every Fall)
Speaking, reading, writing. An emphasis on vocabulary development and refining of grammar points and cultural issues. The materials to supplement the standard textbook include literary texts, film, music, newspaper articles, radio and TV broadcasts, audio, video and computer interactive material, and government documents. This course presumes completion of intermediate level Swahili or its equivalent.

SWAH 4221. Beginning Swahili for Graduate Research I. (; 5 cr. ; Student Option; Every Fall)
Comprehension, speaking, reading, writing. Meets with 1221.

SWAH 4222. Beginning Swahili for Graduate Research II. (; 5 cr. ; Student Option; Every Spring)
Comprehension, speaking, reading, writing. Continuation of skill development from 1221. Meets with 1222.

SWAH 4225. Intermediate Swahili for Graduate Research. (; 5 cr. ; Student Option; Every Spring)
Readings of contemporary Swahili texts. Review of grammar and complex verb forms. Vocabulary, communication skills.

SWAH 4226. Intermediate Swahili for Graduate Research II. (; 5 cr. ; Student Option; Every Spring)
Continuation of skill development from 4225. prereq: 4225 or equiv

SWAH 4425. Advanced Swahili for Graduate Research. (5 cr. ; A-F only; Every Fall)
Speaking, reading, writing. An emphasis on vocabulary development and refining of grammar points and cultural issues. The materials to supplement the standard textbook include literary texts, film, music, newspaper articles, radio and TV broadcasts, audio, video and computer interactive material, and government documents. This course presumes completion of intermediate level Swahili or its equivalent.

Swedish (SWED)

SWED 1001. Beginning Swedish. (; 5 cr. ; Student Option; Every Fall)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.).

SWED 1002. Beginning Swedish. (; 5 cr. ; Student Option; Every Spring)
Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and Swedish culture. prereq: 1001

SWED 1003. Intermediate Swedish. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. prereq: 1002

SWED 1004. Intermediate Swedish. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. prereq: 1003

SWED 4001. Beginning Swedish for Graduate Research. (; 5 cr. ; Student Option; Every Fall)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.). Meets concurrently with 1001.

SWED 4002. Beginning Swedish for Graduate Research. (; 5 cr. ; Student Option; Every Spring)
Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and Swedish culture. Meets concurrently with 1002.

SWED 4003. Intermediate Swedish for Graduate Research. (; 5 cr. ; Student Option; Every Fall)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments. Meets concurrently with 1003.

SWED 4004. Intermediate Swedish for Graduate Research. (; 5 cr. ; Student Option; Every Spring)
Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments. Meets concurrently with 1004.

Theatre Arts (TH)

TH 1101V. Honors Section: Introduction to the Theater. (AH,WI; 3 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Introduction to art/craft of theater. Appreciation/critical analysis of plays/performances. Examples of theater's diverse interactions with society considered from various cultural perspectives. prereq: Honors student

TH 1101W. Introduction to the Theatre. (AH,WI; 3 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Introduction to art/craft of theatre. Appreciation/critical analysis of plays/performances. Examples of theatre's diverse interactions with society considered from various cultural perspectives.

TH 1102. Stage, Screen, Society: Performance in the Media Age. (AH,CIV; 3 cr. ; Student Option; Every Fall)
From viral memes to ?fake news,? from video-gaming to vlogging, our rapidly changing media-scape is at the center of public debates about everything from mental health to the future of democracy. This course engages with these debates to understand the power of new media to shape our identities and values, our cultural habits and communities, our economy and political life. We discuss how we ?perform ourselves? through media, giving rise to social anxieties about truth, authenticity, equality, and belonging, but also to tremendous opportunities for self-expression and connection. And we investigate how our performances are monetized or instrumentalized by governments, social movements, or corporations. How did our current media system develop, and whose interests has it served? How, for better or worse, has the social media age changed us and the world we live in? And how can we make sure that in the future that change is for the better?

TH 1301. Acting/Non-Majors. (; 3 cr. ; Student Option; Every Fall & Spring)
Background/techniques of acting as viewed/practice in theatre, society, and student's own relationships.

TH 1321. Fundamentals of Acting & Performance. (; 3 cr. ; Student Option; Every Fall & Spring)
A fundamental overview of acting that focuses on strengthening the vital connection between physical and vocal expression and uniting instinct and intellectual analysis. Classes focus on ensemble awareness, situation and script analysis, character development and dramaturgical skills. In this course students develop their ?acting instrument?: body, voice and imagination; they learn to make bold, specific choices in scripted and improvisational circumstances, they explore a range of physical

and vocal expression, they develop the ability to respond and adapt to other performers onstage, and intensify their focus and presence in performance. Technique, theory and structured improvisation are incorporated with scene work and collaborative performance projects, offering an opportunity to assimilate the principles covered. The course explores scripted scenes and monologues as well as original-student generated work.

TH 1322. Creating the Performance. (; 3 cr. ; Student Option; Every Fall & Spring)
Responsibilities/techniques of modern stage director as creative/interpretive artist. Creation of directed performance of invented/pre-existing forms, from happenings to traditional psychological/poetic realism. prereq: 1321 or concurrent registration is required (or allowed) in 1321 or 1501 or concurrent registration is required (or allowed) in 1501

TH 1361. Singing for Musical Theatre. (; 3 cr. ; A-F or Audit;)
Beginning singing, interpretation, part singing, phonetics, and audition techniques for Musical Theatre. Solo and ensemble presentations at final class performance.

TH 1362. Dance for Musical Theatre. (; 2 cr. ; A-F or Audit;)
Movement based lab. Dance skills in musical theatre performance. Focuses on various styles/disciplines of dance throughout its culturally diverse heritage. Character development necessary to execution of various dance styles.

TH 1381. New Voices. (; 1 cr. ; S-N only; Every Fall)
Instructors lead students in four Saturday workshop intensives. Student forge interdisciplinary collaborations as they journey through their respective programs. prereq: [Fr or transfer] student from BFA actor training or BA or BFA dance or BA theater

TH 1391. BFA Acting I. (; 3 cr. ; A-F or Audit; Every Fall)
Acting. prereq: Accepted into BFA acting program

TH 1392. BFA Voice and Speech I. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Study/practice in breath centering/expansion; vocal resonance, musicality, placement; ear training; strengthening and making more flexible the muscles of speech. prereq: Accepted into BFA acting prog

TH 1393. BFA Movement I. (; 2 cr. ; A-F or Audit; Every Fall)
Focuses on building a foundation for further work in program. prereq: BFA-acting major

TH 1395. BFA Acting II. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Continuing the process of interpreting dramatic material. prereq: 1391

TH 1396. BFA Voice and Speech II. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Building a foundation for further work in the program. Emphasizes practicing the sounds of good American speech and of the written phonetic alphabet. prereq: 1392

TH 1397. BFA Movement II. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
May include sections such as African dance, yoga, movement for actors, and circus techniques. Focuses on building a foundation for further work in the program. prereq: 1393

TH 1501. Introduction to Design and Technology for Live Performance. (; 3 cr. ; A-F only; Every Fall & Spring)
Principles, processes, and possibilities in all areas of stage design and production. Process and relationship between artistic and production staff members. Collaboration, compromise, creation. Student are assigned to a lab in a technical area. prereq: 1101 or concurrent registration is required (or allowed) in 1101

TH 1911W. Attending (to) Theater. (WI; 3 cr. ; A-F only; Every Fall)
How do we attend and attend to theater in the Twin Cities? This seminar introduces non-theater (and potential) majors to the richness of small and mid-sized theater in the Twin Cities such as Penumbra, Open Eye, and Ten Thousand Things, attending 8-10 performances together. Workshops and discussions with theater professionals will help us to develop critical and creative language to think, write about, and potentially create live performance. We'll think together about how theater might forge a different kind of "commonwealth."

TH 1916. Living Well With the Dead: Afterlives and Ethics in Contemporary Culture. (; 3 cr. ; A-F only; Periodic Spring)
Zombies fill our television screens, dead pop icons come back as holograms in massive arena concerts, immortal cell-lines derived from long-dead humans fill laboratories around the world, and now we can even pay an AI service to maintain our social media life indefinitely after our death. What are the dead doing in contemporary culture? We live in an age when the boundaries between the living and the dead are being redefined. But what are the ethical consequences of this redefinition? Who owns the dead and who gets to profit from them? Do the dead have rights? How do those who are dead but not gone remind us of what we owe to history? What are the responsibilities of the dead to the living and the living to the dead? To answer these questions, this course analyzes examples from popular culture, film, literature, science, and media, past and present. It trains students in skills of research and cultural analysis that are used in several disciplines, from anthropology or literary studies, to media, communications, theatre, sociology, and art history.

TH 2391. BFA Acting III. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Applying concepts of first year of training to an ensemble performance project. Beginning of Shakespeare foundation unit. prereq: BFA student in theatre arts

TH 2392. BFA Voice and Speech III. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Continuing to build a strong, healthy voice. Mastering written phonetics, sounds of good American speech for stage. Students begin to explore speaking of heightened verse, particularly Shakespearean text. prereq: BFA student in theatre arts

TH 2393. BFA Movement III. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Deepens/refines foundation laid in BFA Movement I/II. prereq: BFA student in theatre arts

TH 2395. BFA Acting IV. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
Application of process towards performance. Emphasizes Shakespeare. prereq: BFA-Acting sophomore

TH 2396. BFA Voice and Speech IV. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Continuing to build a strong, healthy voice. Mastering written phonetics and the sounds of good American speech for the stage. Students begin basic dialect acquisition work for the stage. Emphasizes English/Irish dialects. prereq: BFA-acting, sophmore

TH 2397. BFA Movement IV. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
May include sections such as jazz dance, partner dances, and movement for actors. prereq: BFA-acting sophmore

TH 3100. Theatre Practicum. (; 1 cr. [max 4 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Participation in University Theatre main stage play as actor, construction/running crew personnel, or theatre management operations personnel.

TH 3115. Introduction to Playwriting. (; 3 cr. ; Student Option; Every Fall & Spring)
Study of traditional play structure, characterization, dialogue, dramatic action, and theme. Final project is a one-act play.

TH 3120. Theatre: Theory and Practice. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Introdution to diverse ways of thinking about theatre and its representational practices. Students explore traditional/non-traditional modes of performance through readings, discussions, and hands-on performance projects. Seminar-style course. prereq: 1101

TH 3152W. Global Avant-Gardes: Theatre, Music, Modernity. (HIS,WI; 3 cr. ; Student Option; Every Spring)
What does it mean to be an avant-garde artist in the Global South? In postcolonial Africa and Asia, where arts were linked to national modernization projects, artists have played a key role in shaping citizens? identity, alongside schools and universities. While participating in modernizing projects, avant-garde artists maintained independence from state institutions and voiced criticism of dictators. This course examines avant-garde performance in several locations of the Global South, analyzing dramas of national history, modernist music, activist theater, cosmopolitan dance, transnational cultural circuits, and politically radical performances. Reading historical, social, and performance studies, we will develop methods for analyzing performances that aim to make transformative social interventions. These include textual

analysis, ethnography, performance analysis, and tracking transnational cultural exchange. You will apply select methods in your final research paper, which centers on an avant-gardist cultural phenomenon in the contemporary Global South.

TH 3171. History of the Theatre: Ancient Greece Through Neo-Classicism. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
History of Western theatre and drama; theatrical practices, staging conventions, and dramatic structure of plays. Ancient to mid-18th century.

TH 3172. History of the Theatre: Age of Enlightenment to Present. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Theatrical practices, staging conventions, dramatic structure of plays. prereq: Th major or instr consent

TH 3311. Asian American Theater. (3 cr. ; Student Option No Audit; Periodic Fall & Spring)
Through submerging students in both theater history and practice, this class brings students closer to the history, experiences, and politics of Asian Americans. Why are Asian American stories needed, and how do we tell them? What are the artistic and social agendas driving the making of Asian American theater? How have the styles of performance shifted? While we will be actively working on readings and original theater projects, you don't need to be a theater expert to enjoy this class. Topics will include reading plays by Frank Chin, David Henry Hwang, Wakako Yamauchi, Naomi Iizuka, and others; looking at the history of Asian American theater companies; discussing creative approaches to casting, acting, directing, and design; and building collaborations among companies, audiences, and communities.

TH 3314. Text and the Actor. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Standard stage speech, international phonetic alphabet transcription, and textual analysis to perform heightened language texts such as Shakespearean/Shavian monologues, Chaucer's Canterbury Tales, and Beowulf. Videos viewed/discussed. prereq: 1101, 1321, 1322

TH 3316. Voice for the Actor. (; 3 cr. ; A-F only; Every Fall & Spring)
Anatomy/physiology of vocal/respiratory mechanisms. Abdominal breathing, forward tonal placement, articulation of consonants, vocal projection. IPA phonetic transcription and vowel standardization for American Standard Stage Speech. Techniques applied to performance of monologues. prereq: 1101, 1321, 1322

TH 3321. Acting I. (; 3 cr. ; Student Option; Every Fall)
Acting I explores the acting process using the canon of 20th century realism. The class will cover the basics of embodiment for the actor, observation as the root of character creation, analysis of text from an actors perspective, and rehearsal techniques. The core of the course is the preparation of scenes and monologues in class. Students will also complete a variety of class compositions, readings, and will see and analyze live performances.

TH 3322. Advanced Techniques for Characterization. (; 3 cr. ; Student Option; Every Fall & Spring)
Analysis of text, character, and relationship in scenes/monologues from contemporary/modern psychologically-based drama and from early 20th-century texts. Lecture, discussion, exercises, performance. prereq: 3321

TH 3330. Physical Approaches to Acting. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall & Spring)
Dynamic physical approach to acting. Expanding expressiveness/creativity. Strengthening connections between physical/vocal expression. Uniting instinct and intellectual analysis. Techniques as advanced by Delsarte, Meyerhold, Grotowski, Kantor, Suzuki, Barba, etc., and structured improvisation, are incorporated in solo/collaborative performance projects. prereq: 1322, [3314 or concurrent registration is required (or allowed) in 3314], audition, instr consent

TH 3332. Circus Performance. (; 1 cr. ; A-F only; Every Spring)
Strength/conditioning, aerial techniques. Acrobatics to improve timing/muscular structure. Juggling to improve hand-eye coordination and showmanship.

TH 3361. Introductory Musical Theater. (; 3 cr. ; A-F or Audit; Periodic Fall & Spring)
History of American musical theater. Videos/discussions, basic music theory, voice, dance, acting, audition techniques. Solo/ensemble presentations for public class performance.

TH 3365. Intermediate Musical Theatre. (3 cr. ; A-F or Audit; Periodic Fall & Spring)
Musical theatre varying styles. Incorporating music into devised work, as well as strategies on updating traditional performance. Singing, interpretation, dance techniques. Culminates in presentations in public class performance. prereq: 3361 or instr consent

TH 3370. BA Masterclass. (1 cr. [max 4 cr.] ; A-F only; Every Fall & Spring)
Prepare BA theatre performance majors/minors with essential skills that will enhance performing careers as actors, directors, playwrights. Attend non-traditional performances by national/international touring companies. Engage in vigorous discussions led by those artists who are at the forefront of creation models. Rigorous skill-building workshops led by artists, scholars, technicians.

TH 3381. Theater Storytelling and Solo Performance. (; 3 cr. ; Student Option; Every Spring)
Live storytelling and solo performance as theatrical art form. How to turn personal experiences into stage stories. Guests perform, discuss their work, and critique student work. Students develop short monologues/performances and conclude with original solo theater performance/story.

TH 3391. BFA Acting V. (; 3 cr. ; A-F or Audit; Every Fall)
Experiencing a foreign theater culture/history. Applying process of interpreting dramatic material to plays of that culture.

TH 3392. BFA Voice and Speech V. (; 2 cr. ; A-F or Audit; Every Fall & Spring)
Experiencing a foreign theater culture/history. Applying voice training to dramatic material of that culture.

TH 3393. BFA Movement V. (; 2 cr. ; A-F or Audit; Every Fall)
Experiencing a foreign theatre culture/history, applying training to dramatic material of that culture. prereq: BFA student in theatre arts

TH 3395. BFA Intensive I. (; 2 cr. ; A-F or Audit; Every Spring)
Incorporating disciplines of acting/voice/movement. prereq: BFA-acting jr

TH 3398. BFA Rehearsal & Performance I. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Continuing the application of process towards performance. prereq: BFA-acting jr

TH 3399. BFA Rehearsal and Performance II. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Continuing the application of process towards performance. prereq: BFA-acting jr

TH 3521. Introduction to Scenic Design for Theater and Performance. (; 3 cr. ; Student Option; Every Spring)
Use of space/illusion to create environments for theater/performance. Collaborative vocabulary through script interpretation/analysis. Visual literacy through sketching, painting, and drafting. Individual/group projects. prereq: 3571

TH 3531. Introduction to Theatrical Costume Design. (; 3 cr. ; Student Option; Every Spring)
Costume design process, including, researching, script analysis, the costume designer's role throughout the production process, and design problems. prereq: TH 3571

TH 3541. Introduction to Stage Lighting Design. (; 3 cr. ; Student Option; Every Spring)
Composition, color theory, instrumentation, and control (dimming) as they apply to theater, opera, and dance. Collaborative process of the lighting designer through individual and group projects in a lab setting (i.e., a theater.) prereq: 3571

TH 3559. Introduction to Sound Design for the Theatre. (3 cr. ; Student Option; Every Fall & Spring)
Basics of audio design for theatre. Script analysis, audio editing, music research, basic system design, paperwork, cue building. Basic components of audio design. Final project will involve applying skills to partially realized design. prereq: 1501

TH 3571. Introduction to Stage Technology. (; 3 cr. ; A-F only; Every Fall & Spring)
Hands-on techniques. Stage lighting technology in a lab (theater) setting. Electricity, optics, color, control (dimming). Construction/rigging of scenery. Operation of counter weight fly systems and power tools. Constructing a garment. Hand/machine sewing, pinning,

marking, measuring, seam finishes, fabric identification. prereq: 1501

TH 3711. Beginning Directing. (3 cr. ; Student Option; Every Fall & Spring)
Introduction to/application of techniques/ theories of stage direction. Script analysis, composition, blocking, rehearsal methods, improvisation, actor coaching, scene production. prereq: 1101, 1321, 1322

TH 3716. Stage Management. (; 4 cr. ; A-F only; Every Fall & Spring)
Production process, pre-production to maintaining/closing. Managing rehearsals, communication, conflict resolution. Individual/ group projects: promptbook building, blocking notation, Cue placement/execution, scene breakdowns, creating/maintaining checklist, building a form library. prereq: 1501 or instr consent

TH 3760. Project Stage Management. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
Practical application course of stage managing a BFA studio project or TH 4380 Creative Collaboration project, or a project of similar workload at the discretion of the instructor.

TH 3896. Internship for Academic Credit. (; 1-4 cr. ; Student Option; Every Fall, Spring & Summer)
An applied learning experience in an agreed-upon, short-term, supervised workplace activity, with defined goals, which may be related to a student's major field or area of interest. The work can be full or part time, paid or unpaid, primarily in off-campus environments. Internships integrate classroom knowledge and theory with practical application and skill development in professional or community settings. The skills and knowledge learned should be transferable to other employment settings and not simply to advance the operations of the employer. Typically the student?s work is supervised and evaluated by a site coordinator or instructor.

TH 3950. Topics in Theatre. (; 1-4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
Topics specified in Class Schedule.

TH 3993. Directed Study. (; 1-6 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. prereq: 6 Th cr, instr consent, dept consent, college consent

TH 4115. Intermediate Playwriting. (; 3 cr. ; Student Option; Every Spring)
New methods of play construction.
How characteristic plays from particular contemporary styles create original theatrical effects by using/breaking dramatic conventions. Writing exercises, workshoping of student plays. prereq: 3115 or [writing sample, instr consent]

TH 4177W. Survey of Dramatic Literature I: Strategic Interpretation. (WI; 3 cr. ; Student Option; Every Fall & Summer)
Basic principles of script analysis as applied to stage practice from traditional/postmodern approaches. Students read plays, critical perspectives. Discussion, critical writing, performance. prereq: [[3171, 3172], [jr or sr]] or instr consent

TH 4178W. Survey of Dramatic Literature II: Representation and its Effects. (WI; 3 cr. ; Student Option; Every Spring)
In-depth look at how plays actively participate in production of social values and of society itself. Emphasizes consequences of choices theatre artists make. prereq: [[3171, 3172], [jr or sr]] orr instr consent

TH 4181. Convicts, Crocodiles, and Contrasts: Exploring Australian Identity in Film and Literature. (GP; 3 cr. ; A-F only; Periodic Spring)
What is "Australian"? The content of this course will employ a cultural, literary, and film studies approach to exploring the development and representation of Australian identity through the lens of film, drama, and literature. The course will be a 3-week long study abroad course with pre-departure readings and films, on-site readings and activities, and a final project due upon return. Australia is an isolated place considered to be on the "edge of the world," simultaneously the oldest continent and a young civil society. It is a place evocative of wild stunning landscape, exotic wildlife, and a history as a convict colony. Since the birth of the Australian film industry in the 1950's Australian filmmakers have sought to tell their own stories and to interrogate the idea of Australian culture. The global success of films such as Mad Max, Crocodile Dundee, and Priscilla Queen of the Desert have served to reinforce and disrupt stereotypes of Australia as a place and culture. In contrast, films such as Rabbit Proof Fence, Animal Kingdom and The Sapphires seek to tell alternative narratives. Themes such as the urban and rural divide, conquering nature, the place in society of indigenous communities, and fatalism are interrogated Similarly, Australian writers such as Colleen McCullugh, Kate Grenville, Tim Winton, and Liane Morriarty have gained international readership. Their novels, as well as others, use landscape and storytelling to create and challenge simplistic ideas of Australian history and culture. By studying the history and works engaged in creating and interpreting this idea of Australian identity, from Australian artists, students will be asked to engage in a more complex way with the ideas of heritage, culture, and national identity in general. Students will also read selected essays on Australian history and culture. The IDI (Intercultural Development Inventory) will also be used as a tool to engage with the dialogue on identity and culture in general.

TH 4321. Career Preparation for the Actor. (; 3 cr. ; Student Option; Every Fall)
Information/techniques necessary for professional acting career. prereq: 3322

TH 4322. Acting for the Camera. (; 3 cr. ; Student Option; Every Fall & Spring)
Differences between stage acting and acting for camera. Hands-on experience with film equipment. Scenes/monologues rehearsed/ performed for camera. Videotape playback for class critique. prereq: 1301 or 3321

TH 4380. Creative Collaboration. (; 1-3 cr. [max 12 cr.] ; Student Option; Every Fall & Spring)
Ensemble creation of a single theatre performance work. Creative/dramaturgical work. Public showing of work, completed or in-progress. Students work collaboratively with faculty or affiliate guest artists. prereq: Audition, interview, instr consent

TH 4391. BFA Intensive II. (; 2 cr. ; A-F or Audit; Every Fall)
Applying first three years of training toward performance. Seventh in sequence of eight. Acting, voice, and movement. Integrating the disciplines. prereq: BFA student in theatre arts

TH 4393. BFA Rehearsal and Performance III. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Acting, voice, movement. Application of process toward performance. prereq: BFA student in theatre arts

TH 4394. BFA Rehearsal and Performance IV. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Acting, voice and movement. Application of process toward performance. prereq: BFA student in theatre arts

TH 4395. BFA Intensive III. (; 2 cr. ; A-F or Audit; Every Spring)
Incorporating the disciplines of acting/voice/ movement. prereq: BFA-acting sr

TH 4398. BFA Rehearsal and Performance V. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Acting, voice and movement. Continuing the application of process towards performance. prereq: BFA-acting sr

TH 4399. BFA Rehearsal and Performance VI. (; 2 cr. ; A-F or Audit; Periodic Fall & Spring)
Acting, voice, and movement. Continuing the application of process towards performance. prereq: BFA-acting sr

TH 4532. Makeup for the Actor. (; 2 cr. ; Student Option; Every Fall & Spring)
Topics vary. May include functions/aesthetics of stage makeup, application techniques, prosthetics, and facial hair.

TH 4555. Audio Technology. (3 cr. ; Student Option; Periodic Fall)
Sound as science. Technology to create/ manipulate sound. Recording techniques. Effects/signal processing. Microphone/mixing techniques. prereq: 1501 or instr consent

TH 4711. Intermediate Stage Direction. (; 3 cr. ; Student Option; Every Fall & Spring)
Coordinating/guiding collaborative artistic team. Script selection, textural analysis, concept development, space use, composition, movement, dialogue. Final presentation of scene. Intensive research, textural examination, journal. prereq: 1322 or instr consent

TH 4901. Capstone Project for Theater. (; 2 cr. ; S-N or Audit; Every Fall)
Development of senior project, alone or in groups, under guidance of faculty members. prereq: Sr, [Th or Dnce major]

TH 4905H. Honors: Tutorial Seminar in Theatre Arts. (; 2-4 cr. ; A-F only; Every Fall & Spring)
Independent reading/research in preparing honors thesis or selected creative project. prereq: Credit will not be granted if credit has been received for: 4905; honors, theatre arts, dept consent; limit [2 cr for [cum laude or magna cum laude], 4 cr for summa cum laude]

TH 5100. Theatre Practicum. (; 1-4 cr. [max 20 cr.] ; Student Option; Every Fall & Spring)
Individual creative projects in production of approved plays as an actor, director, dramaturg, or playwright. (See 5500 for design practicums.) prereq: instr consent, dept consent; 4 cr of 3100 for undergrads

TH 5103. The Theatre Dramaturg. (; 3 cr. ; Student Option; Periodic Spring)
Theoretical/practical aspects of dramaturgy in American theater. Historical perspectives. Research/production history of classics. Development of new scripts. Dramaturgical structure and interpretive choices. Dramaturgy as it relates to playwrights/directors. Preparing/editing the rehearsal script. Production dramaturgy.

TH 5117. Performance and Social Change. (; 3 cr. ; A-F or Audit; Periodic Fall)
Reading, writing, research, presentations and workshops explore activist performance projects. Theories of social formation and ideology provide framework to discuss/animate theater's potential for social change. prereq: Jr or sr or grad student

TH 5152W. Global Avant-Gardes: Theatre, Music, Modernity. (HIS,WI; 3 cr. ; Student Option; Every Spring)
What does it mean to be an avant-garde artist in the Global South? In postcolonial Africa and Asia, where arts were linked to national modernization projects, artists have played a key role in shaping citizens? identity, alongside schools and universities. While participating in modernizing projects, avant-garde artists maintained independence from state institutions and voiced criticism of dictators. This course examines avant-garde performance in several locations of the Global South, analyzing dramas of national history, modernist music, activist theater, cosmopolitan dance, transnational cultural circuits, and politically radical performances. Reading historical, social, and performance studies, we will develop methods for analyzing performances that aim to make transformative social interventions. These include textual analysis, ethnography, performance analysis, and tracking transnational cultural exchange. You will apply select methods in your final research paper, which centers on an avant-gardist cultural phenomenon in the contemporary Global South.

TH 5179W. Text and Performance. (WI; 3 cr. ; A-F or Audit; Every Fall)
How to read texts toward performance in various dramatic/nondramatic material. Method of unlocking metaphoric energy of texts. Vocabulary/techniques of analysis that transform text from page to stage. prereq: [1322, [3171 or 3172]] or grad student

TH 5181W. Blacks in American Theatre. (WI; 3 cr. ; Student Option; Periodic Spring)
Historical survey of significant events in the development of American black theatre traditions. Essays, plays, playwrights, and theatres from early colonial references to the Black Arts Movement.

TH 5182W. Contemporary Black Theatre: 1960-Present. (WI; 3 cr. ; Student Option; Spring Even Year)
Essays, plays, playwrights, theatres that have contributed to contemporary Black theatre from beginning of Black Arts Movement to present.

TH 5183. Critical Literacy, Storytelling, and Creative Drama. (; 3 cr. ; Student Option; Every Summer)
This course examines and embodies how storytelling and creative drama can be used as tools to help develop students? critical literacy and to assist them in becoming more fluent readers and writers. Critical literacy is the focus; theater and storytelling are the vehicles. Key topics to be covered include: 1) A historical background on fairy and folk tales, legends, fables, myths, and the different oral traditions; 2) Tools for developing a critical view of diverse tales; 3) Practical instruction on how to use storytelling and story genres in the classroom to develop critical literacy; 4) Assessing storytelling work in the classroom. Students will meet in the first week at the University to learn tools of the Neighborhood Bridges program and in the second week will practice and observe each other?s teaching with local school classrooms. In the past we have worked with 4th graders and 6th graders, though we will also discuss how course content applies to high school students. The class meets for two intensive weeks in person, however, we additionally assign pre-readings and post-class reflections and papers.

TH 5330. Comedy: Advanced Physical Performance Studio. (; 3 cr. [max 9 cr.] ; A-F only; Every Spring)
Mechanics of creating physical comedy. Focuses on process using clown, Comedia dell'arte, Bouffons, or improvisational comedy. Exercises on how comedy is born from tragedy and state of conflict within one's self. prereq: 3330, audition

TH 5340. Tragedy/Poetry: Advanced Physical Performance Studio. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall)
Specific tragic/poetic training paradigms in physical theater employed by Stanislavski, Grotowski, Brecht, Lecoq, etc. Psychological, emotional, technical, and physical work. Tragic action in Greek tragedy, Shakespeare, Melodrama, operatic characterization, Brecht. Original tragic/poetical work. prereq: [3322, 3331, grad student] or instr consent

TH 5355. Puppetry: Techniques and Practice in Contemporary Theater. (; 3 cr. ; Student Option; Every Fall & Spring)
Fundamentals of puppet and object theater/performance are introduced through traditional/contemporary puppetry forms. Focuses on object theater, toy theater, hand puppets, and shadow/Bunraku-style puppets. Readings, in-class screenings of videos/slides. Students build/create series of short works for in-class performance. prereq: [[3513 or concurrent registration is required (or allowed) in 3513], instr consent] or grad student

TH 5370. Hand, Mind, and Gesture: An Independent Study in the Creation of Image Driven Performance. (3 cr. ; Student Option; Every Spring)
Create single or collaborative performance/event that lives in time/space. Work will draw from personal investigation, amplify personal signature, explore modalities of image driven forms. Propose, develop, construct, rehearse, present finished public performance. prereq: 5355, instr consent

TH 5500. Theatre Design Practicum. (1-3 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Individual projects in production of approved plays as a designer of scenery/properties, costumes, lighting, or sound. (See 5100 for other creative practicums.) prereq: Th 3521, 3531, or 3541

TH 5510. Drawing, Rendering, and Painting for the Theatre Designer I. (3 cr. ; Student Option; Periodic Fall & Spring)
Development of skills necessary for presentation of theatre scene/costume designs. Materials, layout, and techniques in scene painting. Basic drawing/graphic skills. prereq: 1501 or grad

TH 5520. Scene Design. (3 cr. [max 9 cr.] ; Student Option; Every Fall & Spring)
Conceiving/communicating design ideas in both two-dimensional sketches and three-dimensional models for theatre and allied venues. Drafting. prereq: 3521

TH 5530. Costume Design. (3 cr. [max 9 cr.] ; Student Option; Every Fall)
Theory and process of costume design for theatrical productions (e.g., dance, opera, film) through hypothetical productions. prereq: 3531

TH 5540. Lighting Design for the Theatre. (3 cr. [max 9 cr.] ; Student Option; Every Spring)
Design aesthetics and exploration of design for various stage forms and venues. Development of the lighting plot and paperwork; use of the computer in lighting design. prereq: 3541

TH 5545. Stage Lighting Technology. (; 3 cr. ; Student Option; Periodic Fall)
The lighting technician's skills and crafts: equipment, techniques, control operation, wiring, and maintenance. prereq: 3515 or grad or instr consent

TH 5554. Multimedia Production for Live Performance. (; 3 cr. ; Student Option; Periodic Fall)
Use of multimedia production technologies in actual production. Students apply knowledge/skill in conjunction with an artistic team on a production and are an integral part of the development/realization of that production. prereq: 5553 or instr consent

TH 5556. Audio Engineering. (; 3 cr. ; Student Option; Periodic Spring)

Miking/recording techniques specific to music/dramatic dialogue. Recording different styles of music. Hands-on recording of bands, doing final mixes to demo CD. Field trips to professional studios and club/concert recordings. prereq: 4555, instr consent

TH 5559. Sound Design for Performance. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Audio technology/psychology, their impact on audience in a performance. Communication, design process, psychoacoustics, script analysis. prereq: 4555 or instr consent

TH 5560. Drawing, Rendering, and Painting for the Theatre Designer II. (; 3 cr. ; Student Option; Periodic Spring)
Development of skills necessary for presentation of theatre scene/costume designs. Materials, layout, and techniques in scene painting. Rendering and scene painting skills. prereq: 5510

TH 5570. Properties/Scenery Technology. (; 1-3 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
Management, structures, upholstery, mask-making, furniture construction, stage mechanics, soft properties, faux finishes. Topics specified in Class Schedule. prereq: 3515 or grad or instr consent

TH 5580. Costume Technology. (; 3 cr. [max 15 cr.] ; Student Option; Every Fall & Spring)
Fabric enhancement techniques, masks, wig-making, millinery, makeup prosthetics, pattern drafting, and draping. Topics specified in Class Schedule. prereq: 3571 or grad or instr consent

TH 5590. Theatre Technology Practicum. (; 1-3 cr. [max 15 cr.] ; Student Option; Every Fall, Spring & Summer)
Individual creative project in technology/craft area of theatre. Practical work in costume, lighting, makeup, props, scenery, sound, or theatre management. prereq: 3515, instr consent, dept consent; 4 cr max for undergrads

TH 5711. Advanced Stage Direction. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Realistic/non-realistic dramatic forms. Theory/technique of rehearsal. Production problems. Includes directing of three one-act plays. prereq: [4711, instr consent] or grad student

TH 5716. Stage Management for the Theatre. (; 4 cr. ; Student Option; Every Fall)
Theories, practicalities, and techniques for rehearsal/performance. Organizing/managing various types of performance venues. prereq: [1101, 1321, soph] or grad

TH 5760. Advanced Stage Management. (; 2 cr. ; Student Option; Every Fall & Spring)
Practical experience in stage management for specific productions of the University Theatre with emphasis on rehearsal and performance. prereq: 5716 or concurrent registration is required (or allowed) in 5716, instr consent; [4 cr max for undergrads]

TH 5950. Topics in Theatre. (; 1-4 cr. [max 80 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics specified in Class Schedule.

TH 5993. Directed Study. (1-5 cr. [max 20 cr.] ; Student Option; Every Fall, Spring & Summer)
Guided individual reading or study. Prereq 6 Th cr, instr consent, dept consent, college consent.

Toledo International Program (TLDO)

TLDO 1401. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program in Toledo, Spain, to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 1402. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program in Toledo, Spain, to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 1403. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program in Toledo, Spain, to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 1404. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program in Toledo, Spain, to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 1405. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program in Toledo, Spain, to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 3001. 20th Century Spanish Literature. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Spanish literature.

TLDO 3002. Survey of Spanish American Colonial Literature. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Spanish American literature.

TLDO 3004. Marketing in European Business. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

TLDO 3005. Introduction to Interpretation for Spanish Speakers. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

TLDO 3006. The Camino de Santiago: Past and Present. (3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course

TLDO 3007. Comparative Public Health. (GP,SOCS; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Public health systems are facing an increasing number of challenges: the pressures of globalization, aging populations, and the increase in patient lawsuits, as well as the high costs of medical research and treatments. With these issues in mind, we must critically analyze the manner in which medical care is provided in different systems so that we can design and adapt systems that provide high quality, effective, and efficient health care. Changes made to health care systems are frequently based on economic and political considerations, and many countries are currently experiencing significant challenges in health care that depart from the way their health care has been financed and provided in the past. This course will introduce students to the Spanish health care system and the context in which it is developing, studying the key changes that have taken place up to the present day. Based on a series of case studies, students will be able to compare the Spanish health care model with other models like those of the United States, the United Kingdom, France, Sweden, and/or developing nations. You will compare health care systems and performance on a variety of topics including morbidity and mortality, disease ranking, health system cost, quality, and safety to name a few. You will also develop your critical evaluation skills to analyze the quality of the evidence used to support the policies and practice of health care. This will enable you to critically observe the role governmental and non-governmental organizations play with regard to health care and health status. Throughout the course, special attention will be paid to comparisons between Spain and the United States with a focus on identifying and understanding health disparities and how each country and their health system are addressing elimination of health disparities. Health disparities exist for a variety of reasons, and this course will help you understand what those factors are, and how each country is attempting to improve the social determinants that directly contribute to health disparities.

TLDO 3008. Healthcare Marketing and Communication. (3 cr. ; Student Option; Every Fall, Spring & Summer)
This course centers around the knowledge, analysis, and management of communication and marketing in the healthcare setting, and how it is applied to different audiences? from specialized groups, such as healthcare

professionals, to more general audiences, such as the society at large?to communicate the importance of healthcare policies in an increasingly global atmosphere that requires patient-centered care, incorporation of innovation and efficiency, as well as a goal of sustainability. In Europe, in general, and in Spain, in particular, the healthcare systems are primarily public, and the communication objectives created by institutions are primarily directed toward spreading information, creating awareness, and managing reputation, in contrast with other healthcare systems, such as the American system, which are based on a system of private insurance. Thus, European healthcare institutions, in addition to their large responsibility to manage healthcare, place great importance on communication and marketing policy, on issues of managing and maintaining resources, communicating results, prevention campaigns, and campaigns to create awareness of public expense. At the same time, there is a component of policy-related and institutional communication with regards to advancing the healthcare system, which includes topics that are difficult to transmit to the citizen such as the system?s short-term and long-term sustainability and equality within the system. Complementing the public European healthcare systems, private or civil organizations such as private health centers, the pharmaceutical industry, and patient and professional associations play an important role. Among the primary parties with which they interact to maintain functioning and protect their interests is the government administration. For this reason, their efforts in institutional relationships, reputation management, and communication with the society at large plays an important role in their daily workings and their place in the healthcare system. In addition, all these organizations have an ongoing relationship with the media, both general media as well as those specialized in healthcare correspondence, and, at this time, are facing the same business model changes in the area of communication. Those changes are leading them to develop and expand in the realm of digital communication.

TLDO 3022. Spanish for Business and Professional Life Development. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Vocabulary/usage of interest in business, economics, international relations, or tourism. prereq: Two yrs of college-level Spanish

TLDO 3023. Cross Cultural Business: Business in Spain and the United States Compared. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Contemporary business environment of Spain. Social, economic, and political context. Labor market, financial markets, legal framework. Impact of European single market.

TLDO 3024. Tracing Three Cultures in Spain. (; 3 cr. [max 6 cr.] ; A-F only; Every Spring & Summer)
Three-week intensive course. Lectures, discussions, field trips, including Madrid's 'Museo del Prado', 'El Escorial' Palace, Guided Tours of Judaic Toledo and Mozarabic Segovia. Christian, Muslim, and Jewish culture in literature/art, how they conform to identity of modern Spain. Sephardic heritage in literature/architecture in Toledo. Interaction between Islamic/Hispano-Mozarabic artists. Role of Epic/Reconquest in medieval Spanish literature. Religious painting, Christian iconography during Baroque/Counter-reformation periods.

TLDO 3025. Exploring Spanish Culture Through Digital Technology. (; 3 cr. [max 6 cr.] ; A-F only; Every Summer)
Study abroad course.

TLDO 3104W. Art of Reading Literary Texts. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Critical reading of Spanish and Spanish-American texts. Novels, dramas, poetry, essays. Diverse approaches. Terminology of criticism, literary problems, techniques. prereq: Two yrs of college-level Spanish

TLDO 3105W. Cultural Heritage of Spain. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Main periods of Spanish history. Political, social, anthropological, and economic characteristics of each. Spanish culture/society, from beginning of Franco regime in 1939 to present. Cultural trends in literature/arts in relation to social phenomena. prereq: Two yrs of college-level Spanish

TLDO 3107W. Introduction to the Study of Hispanic Linguistics. (WI; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Phonology, morphology, syntax, semantics, lexicology, pragmatics, discourse analysis, sociolinguistics. History of Spanish language. Introduction to Hispanic linguistics as a discipline in relation to social, cultural, and literary studies.

TLDO 3211. Writers of the Spanish Empire and Its Decline. (; 3 cr. ; A-F or Audit; Every Fall)
Masterpieces of Spain's most significant renaissance and golden age writers, including Lope de Vega, Calderon, Cervantes, Garcilaso, Gongora, Quevedo, and authors of picaresque novels and mystic poetry.

TLDO 3213. Spanish Feudal Society and Literature. (; 3 cr. ; A-F or Audit; Every Spring)
Major works of medieval Spain in connection with its social background, from Auto de los Reyes Magos and Cantar del Mio Cid to Celestina and other pre-Renaissance literature.

TLDO 3214. The Age of Don Quijote. (; 3 cr. ; A-F or Audit; Every Spring)
Major works of Cervantes, Don Quijote de la Mancha, and Novelas Ejemplares as stepping stones to understanding 16th/17th century Spain.

TLDO 3215. Spanish Golden Age Theater. (; 3 cr. ; A-F or Audit; Every Spring)
Spanish Baroque theater. Plays by Lope De Vega, Cervantes, Tirso de Molina, Calderon de la Barca, or Luis Velez de Guevara are read/discussed. Students attend theater in Toledo or Madrid.

TLDO 3216. Contemporary Spanish Women Writers. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Literary works by women writers of last three decades. Spanish history of 20th century. Women?s participation across political spectrum. Feminist movement. Sociopolitical/cultural changes since Franco?s death in 1975. Role of Spanish women writers in transition to democracy and social change.

TLDO 3217. Directed Studies in Literature. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Individual research projects or readings in literature, under faculty direction, to meet objectives not covered by regular curriculum.

TLDO 3218. Discovering the Hispanic World Through the Baroque. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

TLDO 3222. Narrative in Spanish America. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
Narrative currents in Spanish America, from Carpentier and emergence of magical realism to present day. Authors studied include Garcia Marquez, Borges, Fuentes, Vargas Llosa, and Cortazar.

TLDO 3230. Advanced Spanish Conversation. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Contemporary issues in Spain, other subjects of interest. Error evaluation. Review of frequent structural/grammatical problems. prereq: Two yrs of college-level Spanish

TLDO 3231. Spanish Composition and Communication. (; 3-4 cr. ; Student Option; Every Fall, Spring & Summer)
Difficult aspects of Spanish grammar/structures mastered through composition writing. Problems of style/language. Several compositions written outside class. Common errors. prereq: Two yrs of college-level Spanish

TLDO 3232. Art and Architecture in Spain: Periods and Styles. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Characteristics of major periods in Spanish art/architecture. Greek, Roman, Romanesque, Gothic, Baroque, Neo-Classical, Romanticism, Modernism, 20th century avant-garde.

TLDO 3233. Christian, Muslim, Jewish Art: Toledo. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Art of three cultures are studied in/around Toledo.

TLDO 3234. Master Painters of Spain. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Development of Spanish painting studied in works of El Greco, Velazquez, Goya, Picasso, and Dali. Visits to Madrid's Museo del Prado and Centro de Arte Reina Sofia.

TLDO 3235. Politics and Society in Latin America. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Contrasts in political/social structures of various Spanish-American nations in 20th century. Their diversity, common problems.

TLDO 3236. Structure of Spanish: Phonology and Phonetics. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Practical/theoretical aspects of Spanish phonetics. Correcting specific pronunciation problems of non-native speaker. Small practice groups divided according to native languages.

TLDO 3237. Spanish Transition Toward Democracy. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Changes in Spain from Franco's death in 1975 to Law for Political Reform and Constitution of 1978. Role of Monarchy, Army, political parties, and trade unions in shaping Constitution and defining Spain as semi-federal state.

TLDO 3238. Spain and the European Union. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Formation of EU. Impact of building a single European market on Spanish and greater European economies. Readings from daily press.

TLDO 3239. Management of Cultural Heritage. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Theoretical/practical approach to managing Spain's cultural heritage. Historical, artisitc, social, and economic aspects of life in a patrimonial city.

TLDO 3240. Advanced Problems in Spanish Grammar. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Aspects of Spanish syntax in context of written language. Different methods in teaching Spanish grammar. prereq: Two yrs of college-level Spanish

TLDO 3241. Directed Studies in Art History. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Individual research projects or readings in art or archeology, under faculty direction, to meet objectives not covered by regular curriculum. prereq: Two yrs of college-level Spanish

TLDO 3242. History and Memory. (; 3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Study abroad course.

TLDO 3301. Archaeology of the Iberian Peninsula. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Diverse cultures of Iberia as seen through an analysis of most important archaeological sites of the peninsula. prereq: Two yrs of college level Spanish

TLDO 3302. Ethnology and Folklore of the Iberian Peninsula. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Traditional forms of life in Iberian Peninsula in terms of social/economic features. Literary, artisitic, and religious aspects. prereq: Two yrs of college level Spanish

TLDO 3303. Directed Studies in Anthropology and Archeology. (; 1-4 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Individual research projects or readings in anthropology or archeology, under faculty direction, to meet objectives not covered by regular curriculum. prereq: Two yrs of college-level Spanish

TLDO 3314. 20th Century Spanish Art. (3 cr. ; A-F or Audit; Every Spring)
Spanish artists who were most affected by European avant-garde movements and have greatly affected art in/outside Spain (e.g., Pablo Picasso, Salvador Dali, Juan Miro, Juan Gris).

TLDO 3401. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 3402. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 3403. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 3404. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 3405. University of Castilla La Mancha Course. (1-6 cr. ; Student Option; Every Fall, Spring & Summer)
This is a course shell that will be used on the Study & Intern in Toledo study abroad program to represent a course taken at the University of Castilla La Mancha. The specific course title will appear for each student in the Notes field directly underneath this course on their transcript.

TLDO 3502. Spain Since 1936. (; 3 cr. ; A-F or Audit; Every Fall, Spring & Summer)
Main features and social significance of General Franco's authoritarian regime as opposed to German/Italian models. Origins of the Civil War. Later social/economic development Problems in political/constitutional transition since Franco. prereq: Two yrs of college level Spanish

TLDO 3503. Directed Studies in History. (; 1-3 cr. ; A-F only; Every Spring)
Individual research projects or readings in history, under faculty direction, to meet objectives not covered by regular curriculum.

TLDO 3515. Theology of Spanish Mysticism. (; 3 cr. ; A-F or Audit; Every Spring)
Historical, social, cultural, and theological basis of Spanish mysticism. Carmelites, Franciscans, Jesuits. prereq: Two yrs of college level Spanish

TLDO 3516. Spanish Philosophical Thought. (; 3 cr. ; A-F or Audit; Every Fall)
Characteristics of Spanish Renaissance (16th century), influence of Erasmus, mysticism, philosophy of Juan Luis Vives. Overview of philosophical development from 17th to 20th centuries. Contemporary Spanish philosophy, focusing on Unamuno, Ortega y Gasset, and Zubiri. prereq: Two yrs of college level Spanish

TLDO 3517. Introduction to the History and Present Situation of Spanish Women. (; 3 cr. ; A-F only; Every Fall & Spring)
Theoretical/practical approach to fundamental transformations that have conditioned lives of Spanish women, from Golden Age to present. Aspects of women's participation in economic world and in culture.

TLDO 3699. Advanced Individualized Spanish. (; 1-4 cr. ; A-F only; Every Fall & Spring)
Directed study with individual tutoring to improve specific language skills identified by student and supervising professor. prereq: Two yrs of college-level Spanish

TLDO 3703. History of the Spanish Language. (; 3 cr. ; A-F only; Every Spring & Summer)
Trends in historical development of Spanish. Emphasizes grammar and Spanish sound system.

TLDO 3706. Colloquial Spanish. (; 3 cr. ; A-F only; Every Fall, Spring & Summer)
Characteristic phenomena of Spanish in its colloquial spoken form. Variations based on age, social, and regional background. New lexical, morphological, and syntactical coinages.

TLDO 3800. Society Through Spanish and Latin American Film. (; 3 cr. ; A-F only; Every Fall)
Contemporary Spanish and Latin American societies explored through films with Spanish and Latin American artists. Approximately 10 films are analyzed from historic-sociological point of view. prereq: Two yrs of college level Spanish

TLDO 3810. Seminar: Spanish Language Film. (3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
Contemporary cultural/aesthetic trends in Spanish film industry. Viewing/analysis of most significant films of Saura, Bardem, Gurierrez, Aragon, and other directors.

TLDO 3896. Internship in Toledo. (3 cr. ; Student Option; Every Fall, Spring & Summer)

This course grants students the opportunity to reflect on the Spanish work environment in an international context. Through the internship, proposed readings, participation in classroom debates, and written assignments, students will increase their knowledge of Spanish culture and improve their ability to critically examine the worldview that surrounds them. This course is designed to guide students through their internship and build a foundation for a successful professional career. Through assignments and class discussions, students will gain a comparative multicultural perspective on the world labor force, deepening their self-knowledge, their understanding of the work environment, and their perception of success in the workplace. With its multidisciplinary focus, the course seeks to give students the tools they need to analyze the modern Spanish society in which they will find themselves immersed through their internship. With an introduction to modern history, students will analyze different economic, political, and cultural elements that influence society at large and the workplace in particular. In this course, students will discuss many topics involving Spanish society, including the changing role of women, the role of civil servants, immigration, and the solidity of the family structure. In addition, students will analyze potential intercultural communication problems that may arise during their internship, and they will discuss strategies for adapting to their work experience in order to take full advantage of it.

TLDO 3900. Topics in Toledo. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Study abroad course.

TLDO 3970. Internships in Spain. (3-6 cr. [max 12 cr.] ; Student Option; Every Fall, Spring & Summer)
Experiential learning in many fields. Classroom component on meaning of work in Spain and social organizational structure/culture of workplace. prereq: Two yrs of college-level Spanish

TLDO 3975. Service-Learning and the Immigrant Experience in Spain. (3-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Students volunteer at one of several Toledo institutions and collaborate with immigrant population or with Spaniards who work with the immigrant community. Weekly seminar, readings, discussion, reflection, presentations.

Toxicology (TXCL)

TXCL 5000. Directed Research in Toxicology. (; 1-5 cr. [max 80 cr.] ; A-F or Audit; Every Fall & Spring)
Special project that addresses specific issue in toxicology. Under guidance of faculty member. prereq: instr consent

TXCL 5011. Principles of Toxicology. (; 2 cr. ; A-F or Audit; Periodic Fall)
Introduction to fundamentals of poisoning in individuals and the environment, assessment of potential health hazards, and application of toxicology in various professional careers. prereq: Grad txcl major or instr consent

TXCL 5012. Principles of Toxicology. (; 3 cr. ; A-F or Audit; Every Spring)
Science of toxicology. Biomedical principles. Regulatory practices governing protection of human health and environmental quality. prereq: At least one semester [biochemistry, calculus, cell biology]; at least one semester of [human or animal] physiology recommended

TXCL 5013. Chemical Toxicology. (; 3 cr. ; A-F or Audit; Every Fall)
Signs, symptoms, and mechanism of toxicity of different classes of chemicals spanning several organ systems, including chemical carcinogenesis. prereq: 5012, instr consent

TXCL 5101. Molecular and Cellular Basis of Nanoparticle Toxicology. (; 3 cr. [max 6 cr.] ; A-F or Audit; Fall Odd Year)
Introduction to science of nanotoxicology. Nanotechnology in scientific research. Assessment of impact on biological systems. prereq: Introductory toxicology course

TXCL 5195. Veterinary Toxicology. (; 3 cr. ; A-F or Audit; Every Fall)
Toxicology of minerals, pesticides, venoms, and various toxins. Identification of poisonous plants. Recognition, diagnosis, and treatment of animal poisons. prereq: Grad student or instr consent

TXCL 5545. Introduction to Regulatory Medicine. (; 2 cr. ; A-F or Audit; Periodic Spring)
Explanation of products requiring pre-market approval and those that may be marketed without approval. Post-market surveillance. Adverse reactions, removal of product from market. prereq: Grad student or instr consent

Translation and Interpreting (TRIN)

TRIN 1201. Health Care Terms and Concepts for Interpreters. (; 3 cr. ; A-F or Audit; Every Fall)
Technical vocabulary, oral discourse patterns used by health care providers in talking to patients, family members. Language of American health care interview.

TRIN 1301. Legal Terms and Concepts for Interpreters. (; 3 cr. ; Student Option; Fall Odd Year)
American legal system. Technical vocabulary used in courts and other legal settings. Oral legal discourse. Presentations by specialists, discussion, exercises for review/practice.

TRIN 1901. Special Education Terms and Concepts for Interpreters. (; 3 cr. ; Student Option; Periodic Fall & Spring)
This course is designed to introduce students to the terminology, processes, concepts, and legalities involved in interpreting in special education settings.

TRIN 3001. Introduction to Translation. (; 3 cr. ; Student Option; Every Fall & Summer)
Theory of and supervised practice in translation. Re-expressing meaning in a second language. Translation primarily of English language texts concerning public health/safety, legal/voting rights, regulations, and procedures. prereq: Bilingual proficiency in [English, second language of instruction]

TRIN 3002. Intermediate Translation. (; 3 cr. [max 6 cr.] ; Student Option; Periodic Spring)
Additional instruction and supervised practice in translation. prereq: 3001

TRIN 3005. Principles of Translation. (; 3 cr. ; Student Option; Periodic Fall)
Key linguistic principles that help us understand how language makes meaning. Applying principles to translation. prereq: Fluent in English, proficient in a second language, not in CCE certificate prog in interpreting; basic knowledge of English grammar recommended

TRIN 3101. Introduction to Interpreting. (; 3 cr. ; Student Option; Every Fall & Spring)
Practical and theoretical introduction to interpreting in health, human service, and legal settings. Emphasis on understanding the unique role of the interpreter, current models and modes of interpreting, ethical issues and professional standards of practice, and developing pre-interpreting skills. prereq: high level of proficiency in spoken English and another language; 3001 recommended

TRIN 3102. Consecutive Interpreting. (; 3 cr. ; Student Option; Every Fall & Spring)
Practice/theory at professional level in interpreting in health, human service, legal settings. Emphasizes professional/client dialogues. Consecutive interpreting skills, vocabulary research/storage, intercultural issues. Analyzing interpretive process. Performance assessment through audio/videotaping. Subject languages (e.g., Spanish, Russian, Somali) specified for each section. prereq: 3101, high level of proficiency in [spoken English, another language]

TRIN 3900. Topics in Translation and Interpreting. (; 6 cr. [max 24 cr.] ; Student Option; Periodic Summer)
Topics specified in Class Schedule.

TRIN 4201. Interpreting in Health Care Settings. (; 3 cr. ; A-F or Audit; Every Spring)
Practice in interpreting simulated clinical encounters and monologues. Fluency/accuracy in consecutive/simultaneous modes. Sight translation, medical vocabulary in two languages, ethical/situational considerations in health care interpreting. Coursework mainly in bilingual sections (English, another language). prereq: 1201, 3102

TRIN 4301. Interpreting in Legal Settings. (; 3 cr. ; A-F or Audit; Spring Odd Year)
Principles/practice of interpreting in legal settings. Skill-building for fluency/accuracy in simultaneous/consecutive modes. Sight translation. Legal register in two languages. Ethical considerations, courtroom conduct. Observation of actual court proceedings. Coursework mainly in bilingual sections (English, another language). prereq: 1301, 3102

TRIN 4901. Interpreting in Special Education Settings. (3 cr. ; Student Option; Periodic Fall, Spring & Summer)

This course is designed to build interpreting capacity and competency in the specialized field of educational interpreting. It is also designed to give students simulated opportunities to employ the terminology, processes, concepts, and legalities studied in TRIN 1901.

TRIN 5993. Directed Study. (1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Directed study in translation/interpretation.

Undergraduate Summer Research (UGRD)

UGRD 4999. Undergraduate Summer Research. (; 0 cr. ; No Grade Associated; Every Summer)
Undergraduate Summer Research

University College (UC)

UC 1005. Global Perspectives on Higher Education. (; 2 cr. [max 4 cr.] ; Student Option; Every Fall & Spring)
This course provides international students with the skills to understand and think critically about the academic norms, culture, and resources of the U.S. and other higher education systems. Students will analyze how core values, beliefs, and thought patterns inform cultural norms and behaviors, and they will compare and contrast their experience at a U.S. university with their previous educational experiences. Students will investigate university resources and conduct field research in order to find ways to be successful in their current and future intercultural environments. The instructor will support students as they develop their ability to communicate clearly in academic writing, presentations, and small group projects. prereq: International student

UC 4301. Perspectives: Interrelationships of People and Animals in Society Today. (; 2 cr. [max 3 cr.] ; Student Option; Every Spring)
Interrelationships of people and animals from several viewpoints. Social, economic, and health consequences of these relationships, including issues such as pets and people sharing an urban environment, animal rights, and the influence of differences in cultures on animal-human relationships.

UC 5075. Directed Study. (; 1-8 cr. ; Student Option; Every Fall, Spring & Summer)
Directed study.

Urban Studies (URBS)

URBS 1001W. Introduction to Urban Studies: The Complexity of Metropolitan Life. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Interdisciplinary course, ranging across spatial, historical, economic, political, and design perspectives, among many others.

URBS 3001W. Introduction to Urban Studies: The Complexity of Metropolitan Life. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Interdisciplinary course, ranging across spatial, historical, economic, political, and design perspectives, among many others.

URBS 3200. Urban Studies Colloquium. (; 1 cr. [max 4 cr.] ; A-F or Audit; Every Fall & Spring)
Urban/metropolitan issues. Topics vary to reflect current concerns. In-depth reading, intensive group discussion. prereq: dept consent

URBS 3500. Urban Studies Workshop. (; 3 cr. [max 9 cr.] ; A-F or Audit; Every Fall & Spring)
Links academic learning to actual urban problems/issues. Focuses on specific topic using local community as laboratory. Field work, contact with local institutions/agencies. prereq: instr consent

URBS 3751. Understanding the Urban Environment. (ENV; 3 cr. ; A-F or Audit; Every Spring)
Examine links between cities and the environment with emphasis on air, soil, water, pollution, parks and green space, undesirable land uses, environmental justice, and the basic question of how to sustain urban development in an increasingly fragile global surrounding.

URBS 3771. Fundamentals of Transit. (; 3 cr. ; A-F only; Spring Odd Year)
Importance of transit to an urban area. Issues surrounding development/operation of transit. Defining various modes of transit, evaluating why/where each may be used. Making capital improvements to transit system. Finance, travel demand forecasting, environmental assessment, scheduling, evaluation of effectiveness/accessibility.

URBS 3861. Financing Cities. (; 3 cr. ; A-F only; Every Spring)
The most critical question in government is how you are going to pay for something. There is a plethora of good ideas but only so much money. This class looks at how cities are funded. It looks at tax systems, fee systems, grants, special revenues, private development funding and other ways that we pay for cities. It provides practical knowledge on how city activities are funded.

URBS 3871. A Suburban World. (; 3 cr. ; Student Option; Fall Odd Year)
Suburbs as sites of urgent battles over resources, planning practices, land use, and economic development. How suburban life shapes values, political ideals, and worldviews of its populations.

URBS 3896. Urban Studies Internship Seminar. (; 2 cr. [max 4 cr.] ; A-F or Audit; Every Fall, Spring & Summer)
Weekly seminar integrates internship experience with academic program. prereq: Sr, internship placement, dept consent, instr consent

URBS 3955W. Senior Paper Seminar. (WI; 2 cr. ; A-F or Audit; Every Fall & Spring)
Methods/resources for research. Substantial writing. prereq: dept consent

URBS 3993. Urban Studies Directed Study. (1-3 cr. [max 9 cr.] ; Student Option; Every Fall, Spring & Summer)
For students with a specific educational objective that cannot be satisfied through regular curriculum (e.g., foreign study) and for honors students to complete an honors opportunity. Prereq UrbS majors, instr consent, dept consent.

Urdu (URDU)

URDU 1011. Beginning Urdu I. (; 5 cr. ; Student Option No Audit; Every Fall)
Basic listening, speaking, reading, and writing skills. Emphasizes development of communicative competence.

URDU 1012. Beginning Urdu II. (; 5 cr. ; Student Option No Audit; Every Spring)
Basic listening, speaking, reading, and writing skills. Emphasizes development of communicative competence.

URDU 1015. Accelerated Beginning Urdu. (5 cr. ; Student Option No Audit; Every Fall)
Designed for students who already have good speaking skills (mainly heritage students) or those who studied Urdu in the past and can review basic knowledge of the language at a faster pace than that of regular language classes. This course focuses on all four skills (including cultural skills) to develop communicative competence at a novice-high level. The Urdu script will be introduced right from the beginning. Students will learn materials that are normally covered in a full academic year.

URDU 3016. Accelerated Intermediate Urdu. (5 cr. ; Student Option No Audit; Every Spring)
This course continues the accelerated Urdu curriculum and covers the same material as URDU 3021 and 3022 (Intermediate Urdu I and II). Designed for heritage speakers or students who have completed the beginning courses in Urdu (1102 or 1015) and can handle a faster pace. This course aims to refine and expand previously acquired language skills. Prior knowledge of Urdu at the levels of listening, speaking, reading, and writing is essential. In this course, special focus is directed to developing vocabulary and mastering relatively complex grammatical structures used in appropriate socio-cultural environments. Class sessions will be interactive. Students will engage with audio and video material to develop language skills in the class and at home as well as measure language comprehension.

URDU 3021. Intermediate Urdu I. (; 5 cr. ; Student Option No Audit; Every Fall)
Development of reading, writing, speaking, and listening skills. Grammar review, basic compositions, oral presentations.

URDU 3022. Intermediate Urdu II. (; 5 cr. ; Student Option No Audit; Every Spring)
Development of reading, writing, speaking, and listening skills. Grammar review, basic compositions, oral presentations.

URDU 3031. Advanced Urdu I. (4 cr. ; Student Option No Audit; Every Fall)

Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Urdu beyond intermediate level. Prereq: 3022 or instr consent

URDU 3032. Advanced Urdu II. (4 cr. ; Student Option No Audit; Every Spring)
This course is intended for students who have already completed four semesters of study in Urdu or have an equivalent Hindi-Urdu proficiency. The course builds on the skills acquired in speaking, listening, reading, and writing in the first semester of Advanced Urdu instruction (URDU 3031/4005) and provides a more advanced foundation in Urdu. The course aims for the students to acquire an advanced-level proficiency in Urdu by developing language functions such as narration, description, and comparison. Students will be introduced to different genres and styles of spoken and written Urdu as well as grammatical details that facilitate accuracy and fluency. The students are expected to read and write coherent Urdu paragraphs and further develop and hone their conversational skills. We will also review and continue the study of Urdu grammar. prereq: URDU 3031 or instructor consent

URDU 4001. Beginning Urdu I for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall)
Basic listening, speaking, reading, and writing skills. Emphasizes development of communicative competence. Meets with URDU 1011.

URDU 4002. Beginning Urdu II for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Spring)
Basic listening, speaking, reading, and writing skills. Emphasizes development of communicative competence. Meets with URDU 1012.

URDU 4003. Intermediate Urdu I for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Fall)
Development of reading, writing, speaking, and listening skills. Grammar review, basic compositions, oral presentations. Meets with URDU 3021.

URDU 4004. Intermediate Urdu II for Graduate Student Research. (; 5 cr. ; Student Option No Audit; Every Spring)
Reading, writing, speaking, and listening. Grammar review, basic compositions, oral presentations. Meets with URDU 3022.

URDU 4005. Advanced Urdu I for Graduate Research. (4 cr. ; Student Option No Audit; Every Fall)
Continued emphasis on development of communication skills, ability to comprehend both written/spoken texts. Speak, read, write in Urdu beyond intermediate level. Meets with URDU 3031.

URDU 4006. Advanced Urdu II for Graduate Research. (4 cr. ; Student Option No Audit; Every Spring)
This course is intended for students who have already completed four semesters of study in Urdu or have an equivalent Hindi-Urdu proficiency. The course builds on the skills acquired in speaking, listening, reading, and writing in the first semester of Advanced Urdu instruction (URDU 3031/4005) and provides a more advanced foundation in Urdu. The course aims for the students to acquire an advanced-level proficiency in Urdu by developing language functions such as narration, description, and comparison. Students will be introduced to different genres and styles of spoken and written Urdu as well as grammatical details that facilitate accuracy and fluency. The students are expected to read and write coherent Urdu paragraphs and further develop and hone their conversational skills. We will also review and continue the study of Urdu grammar. Meets with URDU 3032.

URDU 4015. Accelerated Beginning Urdu for Graduate Research. (5 cr. ; Student Option No Audit; Every Fall)
Designed for students who already have good speaking skills (mainly heritage students) or those who studied Urdu in the past and can review basic knowledge of the language at a faster pace than that of regular language classes. This course focuses on all four skills (including cultural skills) to develop communicative competence at a novice-high level. The Urdu script will be introduced right from the beginning. Students will learn materials that are normally covered in a full academic year. Meets with URDU 1015.

URDU 4016. Accelerated Intermediate Urdu for Graduate Research. (5 cr. ; Student Option No Audit; Every Spring)
This course continues the accelerated Urdu curriculum and covers the same material as URDU 4003 and 4004 (Intermediate Urdu I and II). Designed for heritage speakers or students who have completed the beginning courses in Urdu (4002 or 4015) and can handle a faster pace. This course aims to refine and expand previously acquired language skills. Prior knowledge of Urdu at the levels of listening, speaking, reading, and writing is essential. In this course, special focus is directed to developing vocabulary and mastering relatively complex grammatical structures used in appropriate socio-cultural environments. Class sessions will be interactive. Students will engage with audio and video material to develop language skills in the class and at home as well as measure language comprehension. Meets with URDU 3016.

URDU 5040. Readings in Urdu Texts. (; 3 cr. ; Student Option; Periodic Fall & Spring)
Read authentic materials of various types to improve reading/speaking ability.

URDU 5993. Directed Study. (1-5 cr. [max 10 cr.] ; Student Option; Periodic Fall & Spring)
Guided individual readings.

Veterinary & Biomedical Sci (VBS)

VBS 1001. Introduction to Biotechnology. (BIOL,TS; 4 cr. ; A-F or Audit; Every Spring)
Basic understanding of cell biology/ biotechnology. Laboratory exercises using modern molecular biotechnology techniques. Lectures. History of biotechnology. Cell biology/ biotechnology. Develop research plan.

VBS 2032. General Microbiology With Laboratory. (5 cr. ; A-F only; Every Fall & Spring)
Bacterial metabolism, growth/genetics, biology of viruses/fungi. Control of microorganisms. Host-microbe interactions, microorganisms/ disease, applied microbiology. prereq: One semester each of college chemistry, biology

VBS 2100. Companion Animal Anatomy. (3 cr. ; A-F only; Every Spring)
Develop anatomical knowledge through study/dissection. Compare/contrast animal adaptations. Prereq: General Biology (e.g., BIOL 1009) is recommended

Veterinary Clinical Sciences (VCS)

VCS 2101. Topics. (; 1-8 cr. ; A-F only; Every Fall, Spring & Summer)
Topics class

VCS 2201. The Intersection of Cancer in Society and Technology. (3 cr. ; A-F only; Every Spring)
The course objectives are to discuss why cancer happens, the impact that cancer has on our society, and how we can use science and technology to defeat it. For most people, cancer is a mysterious and fearsome condition. This emotional response means that social stigmas are often tied to a cancer diagnosis. However, at its core cancer is a disease caused by mutations in a cell?s DNA. In fact, the same mechanisms of mutations in DNA that lead cells to become cancerous are the drivers of evolution, so cancer risk can be considered as part of our evolutionary legacy. Moreover, few people realize that advances in cancer research and treatment are allowing millions of people (and pets) to lead healthy and fulfilling lives as cancer survivors. We will discuss the biological and evolutionary foundations for why cancer happens and advances in how we detect it, treat, and prevent it. The course is designed for students from all majors, and non-scientists are encouraged to enroll and participate. A better understanding by scientists and non-scientists alike of the risks for cancer, of its possible occurrence in virtually all animals, and of advances in diagnosis and treatment, will help demystify this condition and allow students to converse about it in an objective fashion. We have the tools to create a world where we no longer fear cancer, and our goal is to enroll motivated students from the University of Minnesota who will help us achieve this vision.

VCS 4606. Small Animal Management. (; 3 cr. ; A-F or Audit; Every Fall & Spring)
This online course provides an overview of small animal management. Species covered include dogs, cats, small mammals, reptiles, and birds. Course content covers public health, community education, general wellness care, and recognizing common diseases in small animals. Student learning is assessed through online quizzes, discussion participation, and group projects.

VCS 4992. Directed Readings in Veterinary Clinical Sciences. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Students read seminal works in veterinary medicine and literature pertaining to their area of interest. Final project evaluated by faculty member. prereq: [One-page proposal, bibliography of works to be read] submitted to faculty

VCS 4993. Directed Study in Veterinary Clinical Sciences. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Students expand their knowledge of a specific area. Final project evaluated by faculty member. prereq: One-page proposal submitted to faculty member

VCS 4994. Directed Research in Veterinary Clinical Sciences. (; 1-6 cr. [max 12 cr.] ; A-F only; Every Fall, Spring & Summer)
Students perform research in lab setting. prereq: One-page proposal submitted to faculty member

Veterinary Med Summer Research (VTMD)

VTMD 4999. Veterinary Medicine Summer Research. (; 0 cr. ; No Grade Associated; Every Summer)
Veterinary Medicine Summer Research

Veterinary Medicine, Graduate (VMED)

VMED 5080. Problems in Veterinary Epidemiology and Public Health. (; 1-3 cr. ; A-F or Audit; Every Fall & Spring)
Individual study on problem of interest to epidemiology or public health student.

VMED 5082. Diagnostic Epidemiology of Infectious Diseases. (; 2 cr. ; A-F only; Every Spring)
Theoretical principles, practical applications of diagnostic testing in populations. Examples related to infectious diseases in veterinary/ human health. Basis of test performance, limitations, interpretations. prereq: Statistics course or instr consent

VMED 5090. Seminar: Veterinary Epidemiology. (; 1 cr. [max 3 cr.] ; S-N or Audit; Every Fall & Spring)
Each student leads at least one seminar. Reviews of current research, literature reviews, and technique development. Students and participating faculty participate in presentation, discussion, and administration of the seminars. prereq: Veterinary Medicine grad student

VMED 5101. Molecular and Cellular Basis of Nanoparticle Toxicity. (; 3 cr. [max 6 cr.] ; A-F or Audit; Every Fall)
Use of nanotechnology in scientific research. Impact of nanomaterials on biological systems.

VMED 5165. Surveillance of Foodborne Diseases and Food Safety Hazards. (; 2 cr. ; Student Option; Every Spring)
Principles/methods for surveillance of foodborne diseases. Investigation of outbreaks. Assessment of food safety hazards. Focuses on integration of epidemiologic/lab methods. prereq: [PUBH 5330, [professional school or grad student]] or instr consent

VMED 5180. Ecology of Infectious Disease. (3 cr. ; Student Option; Every Fall)
How host, agent, environmental interactions influence transmission of infectious agents. Environmental dissemination, eradication/ control, evolution of virulence. Use of analytical/molecular tools.

VMED 5181. Spatial Analysis in Infectious Disease Epidemiology. (3 cr. ; Student Option No Audit; Every Spring)
Spatial distribution of disease events. Exposures/outcomes. Factors that determine where diseases occur. Analyzing spatial disease data in public health, geography, epidemiology. Focuses on human/animal health related examples. prereq: Intro to epidemiology, statistics,

VMED 5182. Molecular biology for the Public Health Professional. (2 cr. ; Student Option; Every Spring)
This course focuses on introducing students to molecular biology lab tools that are used to investigate infectious diseases in public health settings. The course combines laboratory sessions during which students will learn and run molecular assays with computer lab sessions during which students will analyze molecular data.

VMED 5190. Seminar and Presentation Development. (; 2 cr. ; S-N only; Every Fall)
Skills needed to research, organize, develop, and deliver an oral scientific presentation or to assist in finding, compiling, and organizing information for presentations, theses, or papers suitable for publication. prereq: Grad student

VMED 5210. Advanced Large Animal Physiology I. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall)
Review of large animal physiology at level needed for specialty board certification or beginning research. Students present topics in physiology and supplement reading with clinical case material or journal articles.

VMED 5211. Advanced Large Animal Physiology II. (; 1-3 cr. ; A-F or Audit; Every Spring)
Large animal physiology for specialty board certification or beginning research. Students present topics in physiology and supplement reading with clinical case material or journal articles. prereq: instr consent; 5210 recommended

VMED 5232. Comparative Clinical Veterinary Dermatologic Pathology. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Microscopic pathology of basic dermatologic reactions and of variable disease states. prereq: DVM degree or foreign equiv

VMED 5240. Advanced Small Animal Pathobiology I. (1 cr. ; A-F only; Fall Even Year)
Biology, physiology, pathophysiology, and medicine of disciplines relevant to companion animals. Pathogenesis/treatment of diseases. Developing hypotheses that can be translated into clinical research. Prereq CVM grad student, [DVM or foreign equiv] degree.

VMED 5241. Advanced Small Animal Pathobiology II. (1 cr. ; A-F only; Spring Even Year)
Overview of biology, physiology, pathophysiology, and medicine of disciplines. Underlying pathogenesis/treatment of diseases of companion animals. Developing hypotheses that could be translated into clinical research. Prereq CVM grad student, [DVM or foreign equiv] degree.

VMED 5242. Advanced Small Animal Pathobiology III. (1 cr. ; A-F only; Fall Odd Year)
Overview of biology, physiology, pathophysiology, and medicine. Underlying pathogenesis/treatment of diseases of companion animals. Developing hypotheses that could be translated into clinical research. Prereq CVM grad student, [DVM or foreign equivalent] degree.

VMED 5243. Advanced Small Animal Pathobiology IV. (1 cr. ; A-F only; Spring Odd Year)
Overview of biology, physiology, pathophysiology, and medicine. Underlying pathogenesis/treatment of diseases of companion animals. Developing hypotheses that could be translated into clinical research. Prereq CVM grad student, [DVM or foreign equiv] degree.

VMED 5295. Problems in Large Animal Clinical Medicine/Surgery and Theriogenology. (; 1 cr. [max 3 cr.] ; A-F or Audit; Every Fall & Spring)
Hospital cases using standardized format, audiovisual aids. Review literature pertaining to case. One or two cases presented by enrolled participants per month. prereq: VMed grad student, possess DVM

VMED 5310. Topics in Veterinary Clinical Pathology. (; 1 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Modified rounds format. Cases from VMC used to explore cytology with associated chemistry/ hematology data. Attendees/clinicians can request lab topics for dicussion. Past topics have included lab measurement of chemical analytes, test sensitivity or specificity (e.g., ethylene glycol test, FELV test), lab testing for infectious agents. prereq: Grad student in CVM

VMED 5319. Veterinary Gross Pathology. (1 cr. [max 3 cr.] ; S-N only; Every Fall & Spring)
Diagnosing gross lesions of tissues. Evaluating images from wide variety of animals submitted to lab. Mock exams. Students prepare two in-depth reviews on topics covered during in course. Prereq Grad student in CMB or [VMED, [DVM degree or foreign equivalent], college consent]

VMED 5320. Advanced Veterinary Systemic Pathology I. (; 3 cr. ; A-F only; Fall Even Year)
Students review/summarize topics in systemic pathology using veterinary pathology textbooks and relevant updates from pathology and

veterinary medical journals. Diagnostic cases in alimentary, respiratory, urinary, cardiovascular, and hematopoietic system pathology. Students give 10-15 presentations with handouts for other students. prereq: Grad student in VMED or [CMB, [DVM degree or foreign equiv]] or instr consent

VMED 5330. Veterinary Descriptive Histopathology. (; 1 cr. [max 2 cr.] ; Student Option; Every Fall & Spring)
Weekly, one-hour microscopic slide prsentations, reviews on wide variety of diseases in domestic/non-domestic animals. Students present microscopic slide cases and prepare discussions about disease entities, differential diagnoses, and ancillary tests. prereq: Grad student in VMED or [CMB, [DVM degree or foreign equiv]] or instr consent

VMED 5410. Scientific Writing and Speaking. (; 2 cr. ; A-F only; Fall Odd Year)
Techniques of writing/publishing papers/theses. Manuscript preparation. Submission/review process. Proofreading. Publishing processes. Grant Writing. Oral/poster presentations at sceintific meetings. prereq: Grad student in health sciences

VMED 5430. HIV/AIDS: Pathogenesis, Treatment, and Prevention. (; 1 cr. ; Student Option; Every Fall)
Exposure to pathogenesis, treatment, and prevention of HIV/AIDS from clinical faculty who are dealing with AIDS patients. Developing new questions and design experiments that have greatest chance of translating to clinical setting. prereq: Grad student

VMED 5440. Using Risk Analysis Tools: Estimating Food Safety Risks on the Farm to Table Continuum. (; 2 cr. [max 3 cr.] ; A-F only; Every Spring)
This applications-based course will provide the necessary risk-based tools to evaluate and mitigate the microbial and chemical risks in a food production chain-from the farm until consumption. Students will follow the risk analysis process as an integral part of science-based decision-making to estimate and manage food safety risks. Students will apply different qualitative and quantitative tools by using a computer.

VMED 5442. Quantitative Methods for Population Health. (3 cr. [max 6 cr.] ; Student Option; Every Spring)
This course reviews the principles and application of advanced methods for analysis of population health data, with a focus on animal health and infectious diseases. Analytical techniques that will be taught and applied during the course include risk assessment, spatial analysis, disease modeling, and disease economics.

VMED 5492. Seminar: One Health and Infectious Diseases of Wildlife. (2 cr. ; S-N only; Every Fall)
The course will explore the applied concept of One Health and infectious diseases of wildlife in weekly case studies. In each case study, students will gain an understanding of system dynamics, infer the interplay between humans, animals and the environment in the context of a given wildlife disease, and confront current disease management practices and challenges for successfully mediating transmission and spread.

VMED 5496. Training in Swine Production and Management. (; 4 cr. ; S-N only; Every Fall & Spring)
Production module introduces techniques/ protocols for swine production system operation. Research module covers applied research trials for viral/bacterial pathogens in pigs. prereq: VMED grad student or instr consent

VMED 5594. Research in Veterinary Medicine. (1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent study as determined by instructor. Usual activity includes conducting research in instructor's lab, though research in field may also be included. prereq: Jr, instr consent

VMED 5596. Swine Diseases and Diagnostics. (; 2-3 cr. [max 2 cr.] ; Student Option; Every Fall & Spring)
Review of recent advances in swine diseases; farm visits for on-farm disease diagnostics and control programs.

VMED 5621. Principles of Veterinary Anesthesiology. (; 2 cr. ; A-F only; Every Spring)
In-depth training in principles of veterinary anesthesiology. Lectures, anesthesia labs, presentations by students. prereq: VMed grad student, [DVM degree or foreign equiv], instr consent

VMED 5670. Bovine Surgery Practicum. (; 2 cr. ; S-N only; Every Fall & Spring)
Intensive training in ruminant surgery. Evaluation of food animal surgery principles, hands-on laboratory components. prereq: [VMed grad student, [DVM or equiv foreign degree]] or instr consent

VMED 5881. Food Production, Processing, and Supply Chain. (1 cr. ; S-N only; Every Spring)
Food commodities and agricultural crops play critical roles relevant to public health, energy and economic vitality, feeding the increasing global human population, and providing multiple outputs from feed for animals, to fuel for vehicles, transportation and energy. This course focuses on agricultural commodities. For 2019 we will focus on corn and dairy production systems in Minnesota. The commodity of interest will change from year-to-year to other commodities like pork and sugar beets ? which provide critical outputs for the state of Minnesota.

VMED 5895. Veterinary Public Health Integrated Learning Experience. (1-3 cr. ; S-N only; Every Fall, Spring & Summer)
Part of the curriculum for the master's degree includes an opportunity for students to develop a written document detailing applications of public health practice. Completion of the ILE allows students to synthesize aspects of public health into a document that can be utilized by public health professionals.

VMED 5896. Application of Veterinary Public Health. (0.5-6 cr. [max 12 cr.] ; S-N only; Every Fall, Spring & Summer)
The APEx, applied practice experience provides students an opportunity to learn first-hand about the organization, operations, and special activities of selected agencies, institutions and industries concerned with public health practice. This is a means of gaining additional insight into public health programs, personnel management, governmental relations, public relations, legislative support and, particularly, knowledge of special investigations or responses conducted by these organizations. Participation in the activities of public health practice programs external to the University adds a dimension of experience to the curriculum that enriches the student's training and may be beneficial in seeking employment.

VMED 5910. Grant Writing: What Makes a Winning Proposal?. (2 cr. ; Student Option; Every Spring)
Components of a strong proposal. Grant submission process. What reviewers look for. How to locate grant announcements that match research interests.

VMED 5915. Essential Statistics for Life Sciences. (3 cr. ; A-F or Audit; Every Fall)
This course is a broad overview of the principles and methods of statistical analysis used in life sciences research, including biological, veterinary, and translational research, and provides the background a new researcher needs to understand and apply commonly used statistical methods and the preparation needed for more advanced coursework. Classes will include general instruction and background information, detailed examples of how to perform the analyses, with actual data sets, and discussion on how the topic has been applied in biological research, including reading and assessing papers in the field. Computing will be performed using the R software environment, though students may use alternate software with permission. Topics will include: ? Descriptive statistics and exploratory graphics ? Understanding statistical inference and interpreting P-values and confidence intervals. ? One and two sample inference, including t-tests, proportion tests, and non-parametric alternatives ? Linear regression, including the effects of confounders ? ANOVA methods, including pairwise comparisons and multiple comparisons

VMED 5920. Food Defense: Prepare, Respond, Recover. (; 3 cr. ; A-F only; Every Fall)
Basic principles of preparedness/emergency response. Instructor may substitute topics if timelier topic arises. prereq: Grad or professional student or instr consent

VMED 5921. Seminar in Food Protection and Defense. (1 cr. ; Student Option; Every Fall & Spring)
Complexities of our food systems. Natural/ intentional threats to food security within various industry sectors. Which agencies are responsible for regulating food chains,

monitoring food safety, responding to contamination events.

VMED 5989. Introduction to Applied Health Policy and Leadership. (; 1.5 cr. ; Student Option No Audit; Every Spring)
This course introduces students to policy analysis and leadership tools to navigate the complexities of policy-making and foster policy dialogue and action. We will apply a health lens to discuss contemporary policy issues, explore the different stages of the policy cycle, map the polarities of complex challenges, and apply implementation science techniques to guide policies from theory to impact. May be of particular interest to graduate students in the academic health sciences or HHH/OLPD. prereq: Graduate or professional degree in-progress or completed.

VMED 5990. Veterinary Public Practice Seminar. (; 0.5 cr. [max 2 cr.] ; S-N only; Every Fall & Spring)
Interactive review of current public practice topics in environmental health/toxicology, infectious/parasitic diseases, public health administration/education, epidemiology and biostatistics, and food safety.

VMED 5994. Advanced Clinical Epidemiology. (; 1 cr. ; A-F only; Every Fall)
An in-depth focus on infectious disease epidemiology, with opportunities to apply epidemiologic principles to control infectious diseases in animal populations.

VMED 5998. Leadership to Address Global Grand Challenges. (1.5 cr. ; Student Option No Audit; Every Spring)
In this 5-day skills-based course, participants will learn and apply integrative leadership (also known as shared or facilitative leadership) strategies for addressing global grand challenges. Using global food system challenges as a basis for exploration, we will focus on leadership practices that foster collective action across diverse groups of people.

Veterinary Population Medicine (VPM)

VPM 1550. Introduction to the horse including care, handling, and recognizing behaviors. (; 1 cr. ; Student Option; Every Fall, Spring & Summer)
Horse breeds, colors, behaviors. Basic care/ handling. Online course, but includes three labs working with live horses.

VPM 1560. Introduction to Horseback Riding and Horse Health. (3 cr. ; Student Option; Every Fall, Spring & Summer)
Basic motor skills/commands necessary to ride horse. Focus on interaction of human body with horse's body to create movement. Basic horse care skills, grooming, taking temperature, using hoof tester, etc.

VPM 1901. Aquatic Toxicology, Water Safety, and the Society. (; 2 cr. ; A-F only; Every Fall)
Our planet Earth is dominated (>70%) by water. The hydrosphere contains about 1.36 billion cubic kilometers of water mostly in the form of a liquid (water) that occupies topographic depressions on the Earth. The second most common form of the water molecule on our planet is ice. If all our planet's ice melted, sea-level would rise by about 70 meters. Water is also essential for life. Most animals and plants contain more than 60% water by volume. Without water, life would probably never have developed on our planet. Water contains nutrients that are essential for life. Nutrients are extracted from rocks and sediments. At present, human activity is dumping harmful pollutants (poisons) in surface and ground water. Poisons distribute between water and sediments, depending on the properties of the toxin, soil characteristics and water chemistry. Therefore, poisons present in water may contaminate both the aquatic and the soil dwellers, and plants, thus contaminating the food chain for humans as well as animals. The overall aim of this course is to discuss (i) effects of water pollution on aquatic and terrestrial organism including humans, (ii) water quality issues and (iii) water safety. After completing this course, participants will be able to: -Understand physicochemical and solubility properties of water. -Compare and contrast toxins? behavior in water, soil, air and organisms. -Understand the concept of clean and polluted water. -Understand modes of action of toxic chemicals, types of effects from the molecular to the ecosystem level, and detoxification processes. -Understand food-chain contamination and ensuing toxicity.

VPM 2020. Topics in Veterinary Population Medicine. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics shell. See title descriptions.

VPM 2400. Managed Captive Wildlife. (3 cr. ; A-F or Audit; Every Fall)
This course is an introduction to key issues at the interface of humans and managed captive wildlife. Topics include: the role of managed captive wildlife species in conservation, education, exhibition, agriculture, and research; biodiversity, urban wildlife, biosentinel science, ethics, and animal welfare; and an introduction to the principles and techniques of the care and management of wildlife species in captive settings.

VPM 2451. Introductory Concepts in Raptor Rehabilitation. (; 1 cr. ; A-F only; Every Fall)
This online course will provide a basic understanding of raptor rehabilitation. Topics include: goals of wildlife rehabilitation; regulatory policies and permits; ethical decision making; anatomy and physiology; diet and nutrition; housing; restraint and handling; physical exam; and, emergency care.

VPM 2500. Equine Breeding and Genetics. (2 cr. ; A-F or Audit; Every Spring)
This course is designed to improve knowledge of principles and concepts underlying genetic improvement of horses, and develop applied skill in breeding stock selection and mating decisions.

VPM 3020. Topics in Veterinary Population Medicine. (; 1-3 cr. [max 6 cr.] ; Student Option; Every Fall, Spring & Summer)
Topics shell - see title descriptions

VPM 3850W. Health and Biodiversity. (ENV,WI; 3 cr. ; A-F only; Every Fall)
Basics of biodiversity, human/animal health, interdependence. Strategies for sustainable health. prereq: At least one year of college Biology or equivalent

VPM 4131. Immunology. (; 3 cr. ; Student Option; Every Spring)
Molecular, genetic, and cellular bases for humoral/cell-mediated immunity. Innage immunity. Antigen recognition by B and T lymphocytes. Interactions between lymphocytes and other cells of immune system. Cytokines. Immunoregulation. Key aspects of clinical immunology.

VPM 4400. Diseases in free-ranging and captive wildlife. (3 cr. ; A-F or Audit; Every Spring)
This course will provide a basic understanding of animal health and disease in free-ranging and managed captive wildlife. Topics include: epidemiology of disease, infectious and non-infectious diseases, and potentials impacts of disease on human health, managed agriculture and wildlife for both individuals and populations.

Vienna Executive MBA (VMBA)

VMBA 5700. Managerial Accounting. (; 4 cr. ; A-F or Audit; Every Spring)
How to analyze accounting for use in management decisions. Planning/control. Transfer pricing, performance meansurements, cost behavior, cost allocation, activity based costing, standard costs.

VMBA 5701. Data Analysis and Decision Making. (; 4 cr. ; A-F or Audit; Every Spring & Summer)
Exploratory data analysis, basic inferential procedures, statistical process control, regression analysis, decision models.

VMBA 5702. Financial Management. (; 4 cr. ; A-F or Audit; Every Spring & Summer)
Theory/practice of finance from an analytical approach. Students apply concepts of risk, return, valuation to decisions that a corporate financial officer or person engaged in small business must make about sources/uses of funds during changing financial markets.

VMBA 5703. Marketing Management. (; 4 cr. ; A-F or Audit; Every Spring & Summer)
Developing/implementing most appropriate combination of variables to carry out a firm's strategy in its target markets. Analytic perspectives, concepts, decision tools of marketing for product offering decisions, distribution channel decisions, pricing decisions, communication program decisions.

VMBA 5704. Managing People and Organizations. (; 4 cr. ; A-F or Audit; Every Spring)
Theories/frameworks for analyzing behavior of individuals, groups, organization itself. Emphasizes making decisions, developing action plans. Concepts/principles associated with function of human resource

management (e.g., personnel selection, reward/compensation, collective bargaining).

VMBA 5705. Operations Management. (; 4 cr. ; A-F or Audit; Every Fall)
Operations management function in different types of organizations. Emphasizes productive, innovative, competitive operations. Concepts/ principles related to management of quality/ innovation within service/manufacturing organizations.

VMBA 5706. Business, Government, and Macroeconomics. (; 4 cr. ; A-F or Audit; Every Fall)
Roles of government/business in society. Alternative systems of economics, political values. Social, political, economic, cultural conflicts affecting business sector.

VMBA 5707. Economics in Transition. (4 cr. ; A-F or Audit; Every Fall)
Technological, political, and ethical forces that are shaping the competitive environment. Theoretical considerations. Business responses to specific issues. Projects/cases for companies in East Central Europe.

VMBA 5709. Info Tech Mgmt. (4 cr. [max 16 cr.] ; A-F or Audit; Every Spring)
Various information technologies, their applications. Competitive advantages associated with information technology, organizational/managerial implications.

VMBA 5710. Advanced Financial Management for Global Markets. (; 4 cr. ; A-F or Audit; Every Spring)
Advanced financial concepts for corporate financial decisions at executive level. Investment, firm financing, global markets.

VMBA 5711. Managing Globalization (Guangzhou). (4 cr. ; A-F or Audit; Every Spring & Summer)
Developing international strategies for firms wishing to expand into global markets. Emphasizes analyzing opportunities/constraints posed by international environment. Putting global strategies into operation. Managing strategic alliances/networks.

VMBA 5712. Strategies for a Global Company: an Integrative Perspective. (; 6 cr. [max 36 cr.] ; A-F or Audit; Every Spring)
Multi-disciplinary perspectives from strategic marketing, corporate strategy, operations management. Involvement of faculty/corporate executives. Site visits to global companies, student projects. Capstone course.

VMBA 5713. Negotiations and Conflict Management. (; 4 cr. ; A-F only; Every Spring)
Typical challenges faced when negotiating. Strategies for managing challenges and improving skills as a negotiator and conflict manager.

VMBA 5714. Financial Accounting. (; 4 cr. ; A-F or Audit; Every Spring)
External accounting system used by firms to measure economic performance/financial position. Students analyze corporate financial reports. Impact of economic events. Discussions, cases. Role of financial reporting standards/intermediaries.

VMBA 5715. Corporate and Entrepreneurial Strategy. (4 cr. ; A-F or Audit; Every Fall & Spring)
The objective of the course is to help develop analytic skills in the identification of key issues and in the formulation of appropriate strategies for firms, both established and entrepreneurial, facing complex business situations. We also examine the process through which strategic decisions are made and implemented and discuss how strategy is different in the age of the internet.

Warsaw Executive MBA (WMBA)

WMBA 5658. Financial Management. (; 4.5 cr. ; A-F or Audit; Periodic Fall)
Essentials of financial management theory/ practice. Time value of money, valuation of bonds/stocks, risk/return turn-off, capital budgeting, optimal investment decisions, financial analysis/planning, cost of capital, debt/equity choices, firm valuation, mergers/ acquisitions.

WMBA 5662. Macroeconomic Business Environment. (; 3 cr. ; A-F or Audit; Every Spring)
Students apply methods of decision-making, and of business/public policy analysis, in various real situations drawn from experience of developed market economies.

Water Resources Science (WRS)

WRS 5050. Special Topics in Water Resources Science. (; 1-3 cr. ; A-F or Audit; Periodic Fall & Spring)
Practical topics for local water resource management. Policy and institutions, watershed science, civic engagement, assessment, communication, implementation practices, and administration. Requires working with a mentor in local water resource management. Online only.

WRS 5101. Water Policy. (; 3 cr. ; Student Option; Every Spring)
Socio-cultural, legal, and economic forces that affect use of water resources by individuals/ institutions. Historical trends in water policy, resulting water laws in the United States. Institutional structures whereby water resources are managed at federal, state, and local levels.

WRS 5150. Watershed Specialist Training. (; 2 cr. ; S-N only; Every Fall & Spring)
Practical topics for water resource management professionals. Current policies and institutions, watershed science, civic engagement, assessment, communication, implementation practices, and administration. Requires working with a mentor in local water resource management. Online only.

Writing Studies (WRIT)

WRIT 1001. Introduction to Technical Writing and Communication. (3 cr. ; A-F only; Every Fall & Spring)
This course introduces students to the field of technical writing and communication. Students will explore the history and current and future trends of the field through a variety of readings including journal articles and industry publications. Topics in the course include ethics, global communication, collaboration, usability, digital writing technologies, and content management, as well as the rhetorical principles of audience, purpose, and context. Students will gain exposure to current practices in the field through guest speakers and assignments. Other assignments include oral presentations, analytical and research writing, and writing for the web. The format of the class includes lecture, student-led discussions, group activities, and peer review.

WRIT 1201. Writing Studio. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
Note: this course does not fulfill the first-year writing requirement. WRIT 1201: This course gives students a foundation in the study and practice of writing process and rhetorical frameworks for a variety of genres and skills to enhance writing in and beyond college. This course is for students who want more instruction, practice, and time to develop familiarity with writing tools and processes to support their future college writing and successful completion of WRIT 1301 (fulfillment of FYW requirement).

WRIT 1301. University Writing. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
WRIT 1301 introduces students to rhetorical principles that provide a framework for successful written communication in college and beyond. Students study and write in a variety of genres and disciplines, and in multimodal forms. The courses focus on writing as a way of knowing and learning to develop ideas through critical thinking, including analysis and synthesis. Based on the assumption that writing is a social activity, the course is a workshop format and requires active engagement in the writing process, including pre-writing, peer review, revision, and editing. Students develop information literacy and hone the ability to locate, evaluate, and effectively and ethically incorporate information into their own texts. The blended model combines three credit hours/week of small face-to-face class with one credit hour of online instruction in Canvas. Some sections are dedicated for international and multilingual students. WRIT 1301 fulfills the first-year writing requirement.

WRIT 1401. Writing and Academic Inquiry. (; 4 cr. ; A-F only; Every Fall, Spring & Summer)
WRIT 1401 students read and analyze increasingly challenging texts and are expected to produce increasingly sophisticated responses. Students analyze how writing works in varying contexts/genres and how it presents complex arguments. Students use and expand their writing process and revision to develop writing form/style and rhetorical content that contributes to conversations and provides new insight. Course work also includes academic genres of reading and writing; development of critical reading practices and critical thinking skills; analysis of writing for

rhetorical principles of audience, purpose, and argumentative strategies; and emphasis on performing research with electronic and print libraries. A properly cited research paper that includes a research proposal and an annotated bibliography is the culmination of the course. WRIT 1401 fulfills the first-year writing requirement.

WRIT 1915W. Arguing with Authority: The Past, Present, and Future of Higher Education. (CIV,WI; 3 cr. ; A-F only; Periodic Fall)
This freshman seminar will introduce students to the intellectual projects of studying and participating in higher education as a participatory institution by inviting freshmen into critical dialogue with past, present, popular, and academic representations of higher education and its civic purposes. We will examine the shifting role of the university in public life and the roles that students and other constituencies have played in shaping the character of higher education through writing and other activities. Designed specifically for first-year students, the course will combine academic skill-building with personal and collective reflection on the actual and possible purposes and values of higher education for individuals and the society.

WRIT 1925W. Magazines and New Media. (WI; 3 cr. ; A-F only; Every Fall)
In this seminar, we will study magazines and other smaller publications - some of which you've already read, some of which you haven't - to discuss and write about their significance as cultural artifacts. How can magazines, when seen as "composed" objects, help us with our own writing? How is the rise of the zine and e-zine responding to the evolving digital age? We will examine all aspects of the magazine, including its art, political statements, target audience, and history. Students will practice some of the forms that the class reads and create an e-magazine.

WRIT 3029W. Business and Professional Writing. (WI; 3 cr. ; Student Option; Every Fall, Spring & Summer)
In this course students practice writing and revising common business documents for today?s business world. Students write memos, proposals, cover letters, resumes, and digital and web content as well as practice choice of appropriate formats and media. The course draws from current business practices and stresses workplace collaboration, broader issues of professional literacy, and responsive writing styles. Students practice rhetorical analysis and discuss concepts such as audience, purpose, tone, and context when writing and revising their documents. Students analyze and write from a variety of perspectives and contexts including formal (researched reports, proposals) and informal (email, social media) communication. Students also build a professional online presence through such platforms as LinkedIn.

WRIT 3101W. Writing Arguments. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Students learn about argument, drawn from a number of theories of argument. This goal is pragmatic: those theories provide a vocabulary for talking about argument and for developing and refining students' own written arguments. Students get regular practice, coaching, and feedback on their writing skills, primarily as these concern argumentative writing. Students also learn how to analyze argumentative texts, drawn from popular culture, academic fields, and the public realm.

WRIT 3102W. Public Writing. (CIV,WI; 3 cr. ; A-F only; Every Fall & Spring)
Students in this class examine public documents and apply critical/rhetorical analysis regarding audience, purpose, message, power, and context. Students conduct research and write documents for public audiences on contemporary issues of interest.

WRIT 3152W. Writing on Issues of Science and Technology. (WI; 3 cr. ; A-F or Audit; Every Fall & Spring)
Read books/articles, discuss, and write about major issues in science/technology. Possible topics: DNA and human genome. Animal/ human interaction. Global warming; Alternative energies; Animal/human cloning and stem-cell research. Vaccines from Smallpox to AIDS. Why civilizations collapse.

WRIT 3221W. Communication Modes and Methods. (WI; 3 cr. ; A-F only; Every Fall & Spring)
This course presents a survey of fundamental theories and philosophies of communication. Students will become acquainted with several theories of language and linguistic meaning and with principles of non-verbal and relational communication, and will engage in reflection on differences between older and newer media or ?modes? of discourse (speaking vs. writing; conventional print vs. digital text, etc.). In addition to introducing theories and concepts, the course seeks to develop competencies in evaluating and applying them in the analysis of communication in various contexts including face-to-face conversations, ongoing interpersonal relationships, and digitally-mediated interactions.

WRIT 3244W. Critical Literacies: How Words Change the World. (AH,WI,DSJ; 3 cr. ; A-F or Audit; Every Spring)
Language as creating rather than simply describing "reality." Reading and writing as arenas of active human struggle over social group power. Techniques for analyzing, interpreting, and participating in the conversation of critical literacies.

WRIT 3257. Technical and Professional Presentations. (3 cr. ; Student Option No Audit; Every Fall)
In this course students develop oral presentation skills for technical or professional topics. Areas of study in the course include visual communication, audience analysis, presentation strategies, and presentation of complex research material. The course emphasizes use of digital technologies. Recommend that students take Comm 1101 or equivalent first

WRIT 3270. Special Topics. (; 1-3 cr. [max 6 cr.] ; Student Option; Periodic Fall & Spring)
See Class Schedule.

WRIT 3291. Technical Communication Certificate Capstone Project. (1 cr. ; A-F only; Every Fall, Spring & Summer)
The capstone project is taken in conjunction with a concurrent WRIT course for the Technical Communication Certificate. The project extends an assignment in the selected WRIT course to further explore an aspect of technical communication. Students develop their project in consultation with the instructor of the selected course. Project formats include a paper, report, podcast, video, scientific poster, or electronic presentation. prereq: instr consent

WRIT 3315. Writing on Issues of Land and the Environment. (AH,DSJ; 3 cr. ; A-F or Audit; Every Spring)
Land in America as idea and as actual space. History of cultural values and the meanings land holds for us. Contrasting views of land, especially those of certain Native American peoples. Rise of the conservation movement and the urbanization of U.S. space.

WRIT 3371W. Technology, Self, and Society. (TS,WI; 3 cr. ; A-F only; Every Fall)
Cultural history of American technology. Social values that technology represents in shifts from handicraft to mass production/consumption, in modern transportation, communication, bioengineering. Ethical issues in power, work, identity, our relation to nature.

WRIT 3381W. Writing and Modern Cultural Movements. (AH,WI; 3 cr. ; A-F or Audit; Every Fall)
This course explores how written texts help to shape modern art and cultural movements. Writ 3381 first develops an understanding of the manifesto form by reading primary examples written by artists from such movements as Cubism and Expressionism. Students study the complex written and visual strategies of those texts and how they contributed to social and political change in the modern world. Out of those attempts to change culture, students will be challenged to consider how particular writing strategies developed in the U.S. aimed at bringing about change in 1960s culture in areas such as the women's movement, the move toward racial equality, and the environmental movement. Toward the end of the course, the writings of current movements are taken up as building on and departing from past writing and rhetorical strategies. Students both read about and practice writing strategies studied in the course.

WRIT 3405W. Humanistic Healthcare and Communication. (AH,WI; 3 cr. ; Student Option; Every Spring)
Humanistic Healthcare and Communication focuses on critically therapeutic patient-provider communication. Topics surveyed include: health literacy, cultural and risk communication, health communication, narrative theory and digital medicine. These topics are brought to bear on three historical moments in the history of medicine when humanism entered or was displaced in medical practice. Students will be exposed to writings, visual arts and music created by physicians

and nurses throughout history and write critical essays on these. These will prep students for the new MCAT exam. A variety of guest lecturers from the medical profession will discuss case histories that demonstrate the course themes in practice.

WRIT 3441. Editing, Critique, and Style. (; 3 cr. ; A-F only; Every Fall & Spring)
In this course, students will increase their understanding of how language works and will learn to make choices about language, style, and punctuation to create messages that are clear, concise, and useful. The course emphasizes technical communication, but the skills learned can be applied to any communication situation. Editing practice will include three levels of editing to make the documents comprehensible and useful in which students will not only polish their grammar and punctuation skills, but they will also learn how to explain and justify changes they make in documents. Topics also included in the course are editing methods for both paper and electronic copy and editing for organization and visual design.

WRIT 3562V. Honors: Technical and Professional Writing. (WI; 4 cr. ; A-F only; Every Fall)
Written and oral communication in professional settings, gathering research, analyzing audience, assessing and practicing multiple genres. Draft, test, revise present findings in oral presentation. Honors section includes discussion on scholarly readings in technical and professional writing as well as a final project that must be addressed to a real-world audience.

WRIT 3562W. Technical and Professional Writing. (WI; 4 cr. ; A-F only; Every Fall, Spring & Summer)
This course introduces students to technical and professional writing through various readings and assignments in which students analyze and create texts that work to communicate complex information, solve problems, and complete tasks. Students gain knowledge of workplace genres as well as to develop skills in composing such genres. This course allows students to practice rhetorically analyzing writing situations and composing genres such as memos, proposals, instructions, research reports, and presentations. Students work in teams to develop collaborative content and to compose in a variety of modes including text, graphics, video, audio, and digital. Students also conduct both primary and secondary research and practice usability testing. The course emphasizes creating documents that are goal-driven and appropriate for a specific context and audience.

WRIT 3577W. Rhetoric, Technology, and the Internet. (TS,WI; 3 cr. ; A-F only; Every Fall & Spring)
This course examines the rich and complex ways people are seeking to inform and persuade others via the internet. Western rhetorical theories have adapted to address spoken, written, visual, and digital communication. The internet incorporates aspects of all of these modes of communication, but it also requires us to revisit how we have understood them. Students in Rhetoric, Technology, and the Internet will reinforce their understandings of rhetorical theories and the internet as a technology. The class will also ask students to read current scholarly work about the internet, and develop the critical tools needed to complement, extend, or challenge that work.

WRIT 3671. Visual Rhetoric and Document Design. (3 cr. ; A-F only; Every Fall & Spring)
This course approaches the challenges of document design by drawing upon principles from rhetorical theory and scholarship. In practical terms, this means that the design questions addressed in this class are understood in terms of specific audiences and specific contexts. Students in this class will pursue a blend of critical analysis ? drawing on rhetorical principles ? and document design. While Visual Rhetoric and Document Design assumes no baseline design training, class assignments will encourage students to put theory into practice and develop documents that reflect current best practices in print and digital spaces.

WRIT 3672W. Project Design and Development. (WI; 3 cr. ; A-F or Audit; Every Spring)
If you want to put design thinking, agile project management, teamwork, writing, research, analysis, and critical thinking on your resume, join Project Design and Development. You will study, plan, research, design, and develop technical communication materials in a design-thinking, collaborative-writing environment. You?ll work in teams to create a user manual and information graphic, promotional materials, and a social media campaign while planning and documenting your projects and productivity. You will leave the course with knowledge and skills you can put to work in any organization: small business, nonprofit, and corporate. The course develops competencies that the National Association of Colleges and Employers has named as most-valued by employers: critical thinking, written communication, collaboration, digital technology, leadership, and professionalism.

WRIT 3701W. Rhetorical Theory for Writing Studies. (WI; 3 cr. ; A-F only; Every Fall & Spring)
Principles/history of rhetorical theory/criticism. Classical theories. Aristotle's Rhetoric applied to examples of contemporary communication. Relationship of classical theory to scientific discourse, technical communication. prereq: Soph or jr or sr or instr consent

WRIT 3751W. Seminar: Theory and Practice of Writing Consultancy. (WI; 3 cr. [max 4 cr.] ; Student Option; Every Fall)
This course is a seminar in the theory and practice of teaching writing through one-to-one consultations. Our goal in this seminar is to develop as writers and writing consultants through investigating into, experimenting with, and reflecting upon our own literacy practices; reading carefully and discussing published research and theory as well as examples of our own and other students? writing; posing and exploring questions about writers, writing consulting, language and literacy learning, linguistic diversity, and the role of writing centers within higher education; observing, practicing, and reflecting on a variety of consulting strategies; and designing, conducting, and presenting our own writing center inquiry projects. Through reflective writing, in-class consultations, class discussions, and collaborative activities, we will learn together many approaches for conducting one-to-one conferences and for coaching students in their development as writers. prereq: Currently working in a University writing center, instr consent

WRIT 3896. Internship in Technical Writing and Communication. (; 3 cr. [max 6 cr.] ; A-F only; Every Fall, Spring & Summer)
This is an online course for students who are working in an approved internship in the field of technical communication. Students have the opportunity to apply the skills they have learned in the TWC major in a real-world situation. In the course, students are required to read materials, to submit bi-weekly progress reports on their position to an online forum, and respond to other students. Students are also asked to post examples of their projects and to rate their skills using the CLA Competencies and Rate Tool. The final project in the course is a 10-12 page final report that involves submitting a draft and meeting with the instructor. prereq: Writ 3562W and 24 credits completed in the Technical Writing & Communication major

WRIT 3993. Directed Study. (1-4 cr. [max 8 cr.] ; Student Option; Every Fall, Spring & Summer)
Supervised reading/research on topics not covered in regularly scheduled offerings. Intended primarily for upper division undergraduate students. prereq: instr consent, dept consent, college consent

WRIT 4431W. Science, Technology, and the Law. (CIV,WI; 3 cr. ; A-F only; Every Fall)
In this course students explore the effects of scientific and technological development on the law?and the effects of the law on scientific and technological development. In particular, students will read and discuss government regulation, constitutional guidelines and rights, and federal and state court precedents regarding privacy, intellectual property (patients and copyright), and health law. Specific topics include the following: Search warrants and Four Amendment rights, electronic surveillance law, national security and foreign intelligence, copyright and fair use, citizens? access to creative works, informed consent, medical expert testimony in the courtroom, and the right to medical treatment. Students will have the opportunity to express their opinions and display their analytical skills in three take-home essay exams. Students from all majors are welcome, including those students interested in law school.

WRIT 4501. Usability and Human Factors in Technical Communication. (; 3 cr. ; A-F only; Every Spring)

Principles/concepts of human factors/usability testing. Developing objectives, criteria, and measures. Conducting tests in lab, field, and virtual environments. Using software programs to analyze qualitative/quantitative data.

WRIT 4562. International Professional Communication. (; 3 cr. ; A-F only; Periodic Spring)
This course prepares students to navigate the increasingly global nature of communication and the challenges and opportunities it presents. Students learn how to develop content for and work with clients and colleagues from other cultures, communicate with multicultural audiences, and collaborate in virtual global teams using multiple synchronous and asynchronous technologies. The course includes work with peers and international scholars from various parts of the world. Projects include a metaphorical comparative analysis of cultures; management (global virtual team work) of a translation project with students from another country; interviews with managers/employees in multinational corporations; and curation work with an international archive on emerging technologies.

WRIT 4573W. Writing Proposals and Grant Management. (WI; 3 cr. ; A-F or Audit; Every Fall)
Research funding sources. Interpreting RFP or program announcement. Letters of intent. Grant preparation, following guidelines of RFP or program announcement. Proposals for nonprofits or research/business.

WRIT 4662W. Writing With Digital Technologies. (WI; 3 cr. ; A-F only; Every Fall)
WRIT 4662W is an advanced level Writing Studies course that explores various digital writing technologies and provides multiple opportunities to assess writing situations and make appropriate decisions about digital form and production. Students will learn the basic building blocks of writing in Internet environments (text, sound, images, video) as well as the vocabularies, functionalities, and organizing structures of Web 2.0 environments, how these impact understanding and use of information, and how to produce these environments (i.e., multimedia internet documents) for interactivity and use. This course includes design projects and practice with apps, markup language, content management systems, video, and social media. prereq: Jr or sr or instr consent

WRIT 4664W. Science, Medical, and Health Writing. (WI; 3 cr. ; A-F or Audit; Fall Odd Year)
Read various kinds of science, medical, and health writing. Develop heuristics for science, medical, and health writing grounded in rhetorical theory. Research, draft, and write a variety of science, medical, and health genres for a range of audiences and print/digital outlets.

WRIT 4995. Technical Writing and Communication Capstone. (1 cr. ; A-F only; Every Fall, Spring & Summer)
Capstone project addressing topic in writing studies related to WRIT course. Must be done in conjunction with concurrent 3xxx or 4xxx level course in Writing Studies that student is taking. Instructor permission required for registration.

WRIT 4995H. Technical Writing and Communication Honors Thesis. (; 1 cr. [max 2 cr.] ; A-F only; Every Fall, Spring & Summer)
Technical Writing and Communication Honors Thesis addresses a topic in writing studies related to a WRIT course that the student is taking or has taken. Students will define and investigate a topic in depth, and complete an extended written reflection of their results & understanding. An honors thesis is required of all students graduating with any level of Latin honors. Completing the honors thesis is a year long effort. Students graduating with Latin Honors should enroll in Writ 4995H both fall and spring semesters of their senior year. Students not graduating with Latin Honors should register for Writ 4995.

WRIT 4999. Technical Writing and Communication Capstone. (3 cr. ; A-F only; Every Fall & Spring)
The Senior Capstone course is a culminating experience for all Technical Writing and Communication majors. This course is designed to facilitate individualized student projects that combine previous knowledge, skills, and experiences developed as a TWC major into a senior project. Specifically, students will design and carry out a project of their own design under the guidance of the instructor. Students taking this course should have completed the majority of the TWC core requirements. It is recommended students take it the last semester of their senior year.

WRIT 4999H. Technical Writing and Communication Honors Capstone. (; 3 cr. ; A-F only; Every Fall & Spring)
The senior capstone course is a culminating experience for all Technical Writing and Communication majors. This course is designed to facilitate individualized student projects that combine previous knowledge, skills, and experiences developed as a TWC major into a senior project. Specifically, students will design and carry out a project of their own design under the guidance of the instructor. Completing the honors thesis is a year long effort. Students graduating with Latin Honors should enroll in Writ 4999H during the first semester of their senior year. Students may register for 1 credit in WRIT 3993 their second semester. Students not graduating with Latin Honors should register for Writ 4999.

WRIT 5001. Introduction to Graduate Studies in Scientific and Technical Communication. (; 3 cr. ; A-F only; Every Fall)
This course offers an overview of the field of scientific and technical communication. Students learn about the history of the field including job titles, industries that hire technical communicators, and trends in the field. Students also learn about research methods (including audience analysis and usability testing); software and apps commonly used in technical communication; social issues in technical communication (including legal, ethical, and organizational); and international issues (including writing for regulated environments such as in the medical device industry). Projects are multi-modal and include written reports; slide presentations with and without voice recordings; visual communication including user documentation and movies. Some projects are done individually but most are done in virtual teams. Weekly discussion forums provide students with opportunities to lead and summarize key themes from each week?s topic. Students in this class participate within a community of technical communication professionals and typically have a background in technical communication, medical/science communication, engineering, software, usability, customer support, writing and communication, marketing, or similar area.

WRIT 5051. Graduate Research Writing for International Students. (; 3 cr. ; Student Option; Every Fall, Spring & Summer)
Graduate-level writing techniques/formats for summaries, critiques, research, and abstracts. Persuasion, documentation, structure, grammar, vocabulary, field-specific requirements. Writing through several drafts, using mentor in specific field of study. Revising/editing to meet graduate standards. Discussions. prereq: Grad student

WRIT 5052. Graduate Research Presentations and Conference Writing for Non-Native Speakers of English. (; 3 cr. ; Student Option; Every Fall & Spring)
Practice in writing/presenting graduate-level research for conferences or professional seminars. Delivery of professional academic presentations to U.S. audiences. Conference abstract, paper, and poster presentation. Communication in research process. Students select topics from their own research/studies. Format, style, transitions, topic narrowing, non-verbal presentation skills. prereq: [Grad student, non-native speaker of English] or instr consent

WRIT 5112. Information Design: Theory and Practice. (; 3 cr. ; A-F or Audit; Every Spring)
This course examines how verbal, visual, and multimedia content can be designed and combined to create meaning, improve comprehension, and make information more usable. Emphasis is placed on the rhetorical roles of visual elements in print and digital communications, and how technical communicators can use visual means to reach audiences, convey information, and achieve rhetorical goals. Students read and discuss theory, practice information design skills, and apply both to real communications projects suitable for inclusion in a professional portfolio. Projects focus on print and web content design and development; the information design process (plan, design, develop, layout, testing); project planning toward deliverables (web sites, signage, wayfinding); and universal design (color, symbols, etc.)

WRIT 5196. Internship in Scientific and Technical Communication. (; 3-6 cr. ; S-N or Audit; Every Fall, Spring & Summer)
Internship sites may include the University, industry, or government agencies. An

internship proposal, progress report, internship journal (optional), and final report with a letter from the internship supervisor are required.

WRIT 5270. Special Topics. (; 3 cr. [max 9 cr.] ; Student Option; Periodic Fall & Spring)
Topics specified in Class Schedule.

WRIT 5291. Independent Study, Reading, and Research. (; 1-3 cr. ; Student Option; Every Fall, Spring & Summer)
Supervised reading/research on advanced projects not covered in regularly scheduled offerings. prereq: instr consent, dept consent

WRIT 5531. Introduction to Writing Theory and Pedagogy. (; 3 cr. ; A-F or Audit; Every Fall)
Pedagogical philosophy/methodology in composition, primarily first-year writing. Theories underlying teaching/tutoring with technology. prereq: Grad student

WRIT 5532. Writing Pedagogy Practicum. (; 1 cr. [max 3 cr.] ; S-N only; Every Spring)
Discussion/activities that support development of sound pedagogical practices. Practical details of classroom. Professionalization, theory/research. prereq: Grad student

WRIT 5561. Editing and Style for Technical Communicators. (; 3 cr. ; A-F only; Every Summer)
In this course, students learn strategies for editing and revising writing for technical and non-technical audiences. Students practice three levels of editing skills: proofreading, copyediting, and comprehensive editing. Strategies include advanced grammar and style, editing tools, quantitative data, global documents, and various style guides. Students also examine an editor?s role with authors, in organizations, in global contexts, and in ethical situations. Editing projects focus on the three levels of editing, using proficient methods, collaborating between authors and editors, identifying audience and contexts, editing documents according to style guides, and using rhetorical principles to analyze and edit final documents.

WRIT 5570. Minnesota Writing Project Directed Studies. (; 1-3 cr. [max 9 cr.] ; A-F or Audit; Every Summer)
Guided individual research into current theories/practices of writing and writing pedagogy.

WRIT 5662. Writing With Digital Technologies. (; 3 cr. ; A-F only; Every Fall)
This course explores current and emerging digital writing technologies and teaches students to assess writing situations and make appropriate decisions about digital form, production, and scholarship. Students learn the basic building blocks of writing in Internet environments (text, sound, images, video, interactivity); the vocabularies, functionalities, and organizing structures of Web 2.0 environments and how each impacts understanding and use of information; and how to produce Web 2.0 environments (i.e., multimedia internet documents) that facilitate interactivity and use. This course includes design projects and practice with apps, markup language (html and xml), and content management systems.

WRIT 5664. Science, Medical, and Health Writing. (; 3 cr. ; A-F or Audit; Every Fall)
This course explores the theories and practices of writing about science, medicine, and health (SMH). Students learn about genres of SMH communication including regulatory documents from the FDA, podcasts created by scientists for the public, patient blogs, and published research articles. The course also engages topics including accessibility, writing in regulated environments, writing for complex audiences, and engaging biomedical and scientific research in writing. Students are challenged to consider how language, science, biomedicine, and health intersect and how different stakeholders such as patients, healthcare providers, scientists, government officials, and insurance companies engage in SMH communication.

WRIT 5671. Visual Rhetoric. (; 3 cr. ; A-F only; Every Spring)
This course investigates current understandings of how visuals participate in and extend the rhetorical strategies long associated with speech and writing. Students explore developments in the discipline of visual rhetoric by engaging with an emerging canon of texts that survey the work of rhetoricians, graphic designers, graphic novelists, commercial artists, fine artists, and technical communicators. Emphasis is placed on the use of visuals in science and technology; identifying shared principles of persuasion through visual information; developing the vocabulary to comment on, critique, and create visuals; and assessing whether visuals meet the needs of intended audiences.

WRIT 5775. The Rhetorical Tradition: Classical Period. (; 3 cr. ; A-F only; Every Fall)
Rhetoric in the Classical world and recurring themes that constitute "the rhetorical tradition." Epistemological/ethical status and sociopolitical importance of ancient rhetorical training and discourse. Works by Isocrates, Plato, Aristotle, Cicero, Quintilian, and others. Prepares students for preliminary examinations/seminars in rhetoric.

WRIT 5776. The Rhetorical Tradition: Modern Era. (; 3 cr. ; A-F or Audit; Periodic Spring)
Core works in modern/contemporary rhetorical theory. Twentieth-century revivals of and challenges to the Aristotelian rhetorical tradition. Units devoted to Enlightenment rhetorics; the New Rhetorics of I. A. Richards, Kenneth Burke, and Chaim Perelman; feminist rhetorical theory, historiography, and critique; deconstruction/post-structuralism. Prepares students for preliminary examinations/seminars in rhetoric.

Youth Development and Research (YOST)

YOST 1001. Seeing Youth, Thinking Youth: Media, Popular Media, and Scholarship. (CIV; 3 cr. ; Student Option; Every Fall & Spring)
Use of life-experience, news and popular media to explore everyday realities of being a young person, as it varies by age social class, race/ethnicity, geography, time period, sexual orientation, and capacity.

YOST 1366. Stories of Resistance & Change: Youth, Race, Power & Privilege in the U.S.. (DSJ,LITR; 3 cr. ; Student Option; Every Fall & Spring)
Young people in their everyday lives often experience themselves as invisible, or as trouble, troubled, or in trouble with adult authority. This course will use literature as an opportunity to complement social sciences understandings of youth, to help those who work with children and adolescents to better understand their lived experiences. This course will use classic and contemporary literary texts that respond to the needs, wants, and existential questions that surround young people?s lives, and makes them visible to learners in the class who want to better understand children and adolescents in diverse settings across the United States.

YOST 1368W. Youth Global Perspectives: Arab and Muslim Voices. (GP,WI,LITR; 4 cr. ; Student Option; Every Fall & Spring)
This course helps students build a critical understanding of our current moment, including Islamophobia, conflicts with Iran, and the U.S. role in the relationship between Israel and Palestinians. We accomplish this through a youth studies perspective by reading stories that invite questions. Reading plays, stories, novels, and essays from young Muslim-American, Egyptian, Palestinian, Israeli, Persian, and Yemeni authors, we consider the role of storytelling?including social media?in youth-led social movements. Students practice skills of literary analysis through an interactive and collaborative classroom designed to support diverse learning styles. Through literary works, students gain insight into the forces that shape social interactions and social change on small and large scales in a global context. We work within a social justice framework that aims to understand the complex power dynamics that have shaped the modern Middle East and Western perspectives towards Arabs and Muslims.

YOST 2101. Urban Youth and Youth Issues. (DSJ; 4 cr. ; Student Option; Every Fall & Spring)
What it is like to be a young person in a city, in the United States and worldwide. prereq: 1001 or instr consent

YOST 2241. Experiential Learning. (4 cr. ; Student Option; Every Fall & Spring)
History/theory of experiential learning, its application in youthwork. Observation, reflection, program design, and evaluation skills grounded in experiential learning theory. 15 hours of field observation required. prereq: [1001, 2001] or instr consent

YOST 3001. Introduction to History & Philosophy of Youthwork. (4 cr. ; Student Option; Every Fall & Spring)

Foundations of youthwork. Where contemporary American youthwork stands, particularly in comparison with international perspectives on youth/youthwork. prereq: 2xxx or instr consent

YOST 3011. Young Voices: The Fight for Social Change in Croatia. (GP; 3 cr. ; A-F only; Periodic Summer)
This international immersion course explores the history, struggles, accomplishments, and experiences of Croatian young people who have engaged in social change efforts. Our focus will be on young people's involvement in a diverse range of social change movements and how these emerged, how they worked, and what caused them to decline.

YOST 3031. International Youthwork. (3 cr. ; A-F only; Periodic Fall, Spring & Summer)
The purpose of this course is to introduce you to the lives of young people living outside of the US, foreign young people living here (immigrants and refugees), and work with both groups, directly and on their behalf. This course is part of our larger effort to include international content in our curriculum, both to prepare you for such work and as another way to reflect on practice in the U.S. Every effort will be made to focus classwork and course assignments on your interests. It is commonplace to write or say that we live now in a global world, a globalized, interconnected economy, of instant audio, visual and electronic communication. This is true for many worldwide, while there are also enormous numbers of people living their everyday lives outside of, or on the margins of, this instant, interconnected and interdependent world. Many of these are young people, ages 12-22 (or older depending on local definitions of youth and adult). Our concern will be on these youth populations worldwide, and include analysis and reflection of the effects of these and related socioeconomic and cultural structures on the everyday lives of young people, as this varies by age, social class, race/ethnicity, sex, geography, language, capacity, sexual orientation and the like. Basic to our orientation is the belief that one cannot understand the everyday lives of young people, indeed individual young persons, without grasping their social, cultural, economic and political embeddedness in their local youth and adult worlds. Every individual lives somewhere at some time and this ?hereness and thereness? have a history, meanings and understandings, which are sources of the unique individual: Each person is social and cultural, as well as psychological. Given this basic orientation, how might we go about understanding young people and their everyday lives if we don?t know their actual, everyday-life worlds? prereq: 2xxx or instr consent

YOST 3032. Adolescent and Youth Development for Youthworkers. (; 4 cr. ; Student Option; Every Fall & Spring)
Application of theory/research about children/ adolescents. How findings can be used. How theories facilitate understanding of behavior. prereq: 1001 or 2001 or 2002W or 2101, [any Psych or CPsy course]

YOST 3101. Youthwork: Orientations and Approaches. (4 cr. ; Student Option; Every Spring)
Historical/contemporary approaches to youthwork, diverse settings in which it is done, importance of worker's life experience in crafting ethical, effective practice. At least 15 hours of field experience. prereq: One gen psy course, one gen soc course

YOST 3235. Community Building, Civic Engagement, and Civic Youthwork. (4 cr. ; Student Option; Every Spring)
Reciprocities between youth development and community development brought about by young people's civic engagement. Individual, social, and political change by/for young people and their community. prereq: [2001, One basic course in Pol, one basic course in Soc] or instr consent

YOST 3240. Special Topics in Youth Studies. (; 2-8 cr. [max 10 cr.] ; Student Option; Every Fall, Spring & Summer)
In-depth investigation of one area of youth studies. Teaching procedure/approach determined by specific topic and student needs. Topic announced in advance. prereq: [Two social sci courses, exp working with youth] or instr consent

YOST 3291. Independent Study in Youth Studies. (; 1-9 cr. [max 18 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent reading or research under faculty supervision. prereq: instr consent

YOST 3321. Facilitating Outdoor Experiences. (; 3 cr. ; A-F only; Every Fall)
Theory and practice of leading outdoor recreation experiences. Focused on technical outdoor living skills, judgement and decision making, risk management/site management, instructional strategies in the outdoor classroom, and the application of the Experiential Education model. NOTE: Student will not receive credit if they have previously taken REC 4900/5900 - Special Topics with this topic title.

YOST 3322. Facilitating Outdoor Experiences - Winter. (3 cr. ; A-F only; Every Spring)
Theory and practice of leading outdoor recreation experiences. Focused on technical outdoor living skills both general and specific to winter, judgement and decision making, risk management/site management, instructional strategies in the outdoor classroom, and the application of the Experiential Education model. prereq: Student will not receive credit if they have previously taken REC 4900/5900 - Special Topics with this topic title.

YOST 3325W. Project-Based Writing For Education and Human Development Majors. (WI; 4 cr. ; Student Option; Every Fall & Spring)
Writing project focused on problem or issue in field of study. Propose project, identify audience, gather information through primary/ secondary research. Create product tailored to audience needs. Collaborative activities/ assignments. prereq: 60+ undergraduate credits, declared major

YOST 4196. Youthwork Internship. (; 4 cr. [max 8 cr.] ; Student Option; Every Fall & Spring)
This course introduces you to the practice of youthwork and supports your professional development as a youth worker. The goal is to explore how we can become better reflexive and critical practitioners. This is the required course for the Youth Studies major but is open to all who have an interest in improving practice and want to explore the field of youthwork. The course requires students to participate in BOTH a weekly seminar and a supervised youthwork internship. The focus in seminar is on integrating knowledge and youthwork skills for entry-level professional work with young people. The focus of the supervised fieldwork is on what the experience of doing youthwork with real youth contextually and professionally teaches us about affecting change in the lives of young people. The Youth Studies program takes an interdisciplinary approach to youth work and youth development. Students will integrate different ways of understanding youth into their direct practice. The program also focuses on human rights and social justice. This means accounting for and responding to the many ways discursive and institutional power operates to silence young people. This includes the ways in which power structures what opportunities are available to young people of different genders, sexual orientation, ethnicities, race, classes, geographical locations, etc. Our approach to understanding and responding to these issues is to attend to young people?s everyday lives and the idea of ?youth-in-the-world.? The Youth Studies program expects students to be self-reflexive and critique how they experience privilege as well as how they experience oppression. Students will engage in this analysis of power and privilege from a micro/personal perspective and a macro/ policy perspective. Students will begin to craft responses to lessening these structures on the young people?s everyday lived experiences. prereq: Declaration of youth studies major, instr consent

YOST 4301. Communicating With Adolescents About Sexuality. (; 3 cr. ; Student Option; Periodic Fall & Spring)
How to communicate sensitively/effectively with adolescents and their concerned persons about sexuality in everyday life. Focuses on healthy sexual development (physical, emotional, ethical) and sexual diversities. Adolescent sexual issues: gender, body image, disease, sexual violence, intimacy, sex in cyberspace. prereq: 1001 or instr consent

YOST 4314. Theater Activities in Youthwork and Education. (; 2 cr. ; Student Option; Every Spring)
Empowering methods of personal/creative development using experiential learning and theater activities to enhance creativity/ imagination. Approaches to working with youth in school and youth agency settings. Experiential learning, improvisational theater theory/practice. prereq: 1001 or 2101

YOST 4315. Youthwork in Schools. (; 4 cr. ; Student Option; Every Fall & Spring)

Craft of youthwork as a framework to understand life-worlds of young people and a practice to enhance healthy development. How young people often divide their lives into artificial/harmful divide: ?school? and ? not school.? prereq: Introductory course in education or instr consent

YOST 4316. Media and Youth: Learning, Teaching, and Doing. (; 2 cr. ; Student Option; Every Spring)
How to use various media sources with young people to enhance their development and civic engagement. prereq: 1001 or 2101 or instr consent

YOST 4317. Youthwork in Contested Spaces. (3 cr. ; Student Option; Periodic Fall, Spring & Summer)
How does youth work change in contested spaces? Do youth workers require different competencies to work in a ?world that has been made strange through the desolating experience of violence and loss?? This course continually revisits these questions as we read about, research within, and talk to others who have worked in contested spaces. The course ends by describing and developing an understanding of youth work in current and post-violently divided societies internationally, such as Northern Ireland, Palestine, South Africa, and India. Veena Das? work in India around social suffering, will be used to frame the work and understand the overall aims and goals of community based youth work in such places. Indeed, youth work in contested spaces began in these worlds marked by suffering, loss, and a legacy of violence. One purpose of the course is to explore youth work practice in contexts marked by suffering, loss, and violence. During the first two thirds of the course, we begin to understand how contested spaces exist all around us, some that we are well aware of because we also experience and are shaped by them, and others that exist only slightly further away from our own personal experience. To gain a deeper understanding of what it is like to work in contested space, students and faculty will talk with and visit different organizations and people working in different ?contested spaces.? Over two weeks we will talk with community members and young people to gain insight into how contested spaces provides background and context for growing up, what major issues young people face living and growing up in this space, and what work is currently going on to address the contested nature of the community. The course also supports an autobiographical turn, asking students to begin to reflect on, and understand the contested spaces that they too were a part of, either as victim or instigator. We end the course by analyzing the data we have collected on the neighborhood, our own personal experience of contested spaces and searching for themes and touchstones to guide youth work in such spaces. prereq: 1001 or 2101 or instr consent; 3101 recommended

YOST 4319. Understanding Youth Subcultures. (; 3 cr. ; Student Option; Periodic Fall, Spring & Summer)
Young people's participation in and understanding of subcultures, life-styles, and event cultures. Place of these in young people's identity, friendship, and life chances. prereq: [1001, one basic course in [ANTH or SOC]] or instr consent

YOST 4321. Work with Youth: Individual. (; 2 cr. ; Student Option; Every Fall)
Assumptions underlying individual work with youth. Issues/concerns of adolescents and of persons who work with them in one-to-one interactions. prereq: 1001 or 2101 or instr consent

YOST 4322. Work with Youth: Families. (; 2 cr. ; Student Option; Every Fall)
Theories /techniques of working with youth and their families. Emphasizes practical methods of structural change, developing effective communication, decision-making and problem-solving systems, winning the family's cooperation. Role of professional in influencing healthy family development. prereq: 1001 or 2002W or instr consent

YOST 4323. Work with Youth: Groups. (2 cr. ; A-F only; Every Fall)
Social group work, adolescent group needs/ associations. Group process. Working with diverse groups of youth in community, in group living situations, and in group therapy. prereq: [[1001 or 2002W], 4321] or instr consent

YOST 4325. Improving Everyday Youthwork: Practical Program Evaluation. (3 cr. ; Student Option; Every Fall)
Purpose, methods, and uses of program evaluation. How young people can develop/ enhance programs and secure funding. Evaluation as political/moral imperative. prereq: [[1001 or 2101], 3234] or instr consent

YOST 4401W. Young People's Spirituality and Youthwork: An Introduction. (WI; 4 cr. ; Student Option; Spring Odd Year)
Adolescent spirituality, its relation to working with young people. Faith/spirituality as necessary for healthy youth development. Knowledge, attitudes, and skills to recognize spirituality in cultural, social, economic, and political worlds. prereq: 1001 or 2002W or instr consent

YOST 4402. Youth Policy: Enhancing Healthy Development in Everyday Life. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Youth policy as formulated in response to youth issues, problems, and community/ public concerns. Policy as political response to youth panics, as indirect youthwork, and as a community's moral compact with its young people. Perspectives explored are specific to student interests. prereq: [1001, 2002W] or instr consent

YOST 4411. Youth Research and Youth Program Evaluation. (4 cr. ; Student Option; Every Spring)
Field research practicum. Basic social science approaches to the study of youth. Evaluating youth programs. Students complete a simple youth research/evaluation study. prereq: Basic research methods course or instr consent

YOST 5011. Youth Voices: The Fight for Social Change in Croatia. (3 cr. ; A-F only; Periodic Summer)
This international immersion course explores the history, struggles, accomplishments, and experiences of Croatian young people who have engaged in social change efforts. Our focus will be on young people's involvement in a diverse range of social change movements and how these emerged, how they worked, and what caused them to decline.

YOST 5030. Youth Voices: The Fight for Social Change in Croatia. (3 cr. ; A-F only; Periodic Summer)
This international immersion course explores the history, struggles, accomplishments, and experiences of Croatian young people who have engaged in social change efforts. Our focus will be on young people's involvement in a diverse range of social change movements and how these emerged, how they worked, and what caused them to decline.

YOST 5032. Adolescent and Youth Development for Youthworkers. (; 4 cr. ; Student Option; Every Fall & Spring)
Application of theory/research about children/ adolescents. How findings/theories facilitate understanding of behavior. prereq: [1001 or 2001 or 2002W or 2101], [any Psych or CPsy course]

YOST 5234. Youth Agencies, Organizations, and Youth Service System. (; 3 cr. ; Student Option; Every Spring)
Communities and governmental responses to young people as potential problems through agencies and programs and other organizational forms. Purpose, structure, and activities of such forms. How forms are/are not integrated into youth service systems. prereq: [Two soc/anth courses, work experience in [youth agency or org]] or instr consent

YOST 5235. Community Building, Civic Engagement, and Civic Youthwork. (4 cr. ; Student Option; Every Spring)
Reciprocities between youth development and community development brought about by young people's civic engagement. Individual, social, and political change by/for young people and their community. prereq: [2001, one basic course in Pol, one basic course in Soc] or instr consent

YOST 5240. Special Topics in Youth Studies. (; 2-8 cr. [max 40 cr.] ; Student Option; Every Fall, Spring & Summer)
In-depth investigation of one area of youth studies. Teaching procedure and approach determined by specific topic and student needs. Topic announced in advance. prereq: Two social sci courses, exper working with youth or instr consent

YOST 5291. Independent Study in Youth Studies. (; 1-8 cr. [max 16 cr.] ; Student Option; Every Fall, Spring & Summer)
Independent reading and/or research under faculty supervision.

YOST 5301. Communicating With Adolescents About Sexuality. (; 3 cr. ; Student Option; Every Summer)
How to communicate sensitively/effectively with adolescents and their concerned persons about sexuality in everyday life. Healthy

sexual development (physical, emotional, ethical), sexual diversities. Gender/body image, disease, sexual violence, intimacy, sex in cyberspace. prereq: [Upper div AdPy course, exper working with youth] or instr consent

YOST 5314. Theatre Activities in Youthwork and Education. (; 2 cr. ; Student Option; Every Spring)
Using experiential learning and theater activities to enhance creativity and imagination of youth workers and educators. Approaches to working with youth in school and agency settings. Application of experiential learning and improvisational theater theory/praxis. prereq: 1001 or 2101

YOST 5315. Youthwork in Schools. (; 4 cr. ; Student Option; Every Fall & Spring)
Craft of youthwork as a framework to understand life-worlds of young people and a practice to enhance healthy development. How young people often make artificially/harmfully divide their lives into "school" and "not school." prereq: Introductory course in education or instr consent

YOST 5316. Media & Youth: Learning, Teaching, and Doing. (; 2 cr. ; Student Option; Every Spring)
Youth are targets, producers, and consumers of a variety of media. This course is about understanding and learning to use a variety of these sources with young people to enhance their development and civic engagement. prereq: 1001 or 2101 or instr consent

YOST 5319. Understanding Youth Subcultures. (; 3 cr. ; Student Option; Every Summer)
Young people's participation in and understanding of subcultures, life-styles, and event cultures. Place of these in young people's identity, friendship, and life chances. prereq: 2001 or one course each in [Anth, Soc] or instr consent

YOST 5321. Work With Youth: Individual. (2 cr. ; Student Option; Every Fall, Spring & Summer)
Basic assumptions underlying individual work with youth. Special issues and concerns of adolescents and of persons who work with them, especially those who work with youth in one-to-one interactions. prereq: 1001 or 2002W or instr consent

YOST 5322. Work With Youth: Families. (; 2 cr. ; Student Option; Every Fall, Spring & Summer)
Theories and techniques of working with youth and their families. Practical methods of structural change. Developing effective communication. Decision-making and problem-solving systems. Winning the family's cooperation. Role of professional in influencing healthy family development. prereq: 1001 or 2002W or instr consent

YOST 5323. Work with Youth: Groups. (; 2 cr. ; Student Option; Every Fall & Summer)
Social group work. Adolescent group needs and associations. Group process. Working with diverse groups of youth in community, in group living situations, and in group therapy. prereq: 1001 or 2002W or instr consent

YOST 5401. Young People's Spirituality and Youthwork: an Introduction. (; 4 cr. ; A-F or Audit; Every Spring)
Adolescent spirituality, its relation to working with young people. Faith/spirituality as actual/necessary aspects of healthy youth development. Research, active community-based programs. Knowledge, attitudes, and skills to meet adolescent needs/wants. prereq: [2001, one course each in [Anth, Soc, CPsy]] or instr consent

YOST 5402. Youth Policy: Enhancing Healthy Development in Everyday Life. (; 4 cr. ; Student Option; Periodic Fall & Spring)
Youth policy as formulated in response to youth issues, problems, and community and public concerns. Policy as political response to youth panics, as indirect youthwork, and as a community's moral compact with its young people. Perspectives are explored specific to student interests. prereq: [2001, one course each in [FSoS, PolSci, Soc]] or instr consent

YOST 5950. Ways of Knowing in Youth Development Leadership: Using Research and Evlauation to Support Community. (; 3 cr. ; A-F only; Every Fall)
This course aims to stimulate students to think critically about youth development and youth work through exploring different ways of knowing. These paradigms each construct different understandings of young people and offer evidence to support diverse youth development practice and programs. Students will leave with a broad perspective of how youth development and youth work empirical evidence is constructed and used to support healthy youth development.

YOST 5952. Everyday Lives of Youth. (3 cr. ; A-F or Audit; Every Fall)
Youth as idea/lived-reality in scholarship, public discourse, and professional practice. Building practice of work with or on behalf of youth.

YOST 5954. Experiential Learning: Pedagogy for Community and Classroom. (3 cr. ; Student Option; Every Fall & Spring)
Relationship between experience and learning in community and school settings. Emphasizes intentional application of experiential learning theory/practice to educational program development.

YOST 5956. Organizational Approaches to Youth Development. (3 cr. ; A-F or Audit; Every Fall)
Historical contexts, theoretical frameworks, organizational practices, and public policies that shape nonformal educational experiences of youth in community-based or school-linked settings.

YOST 5958. Community: Context for Youth Development Leadership. (3 cr. ; A-F or Audit; Every Spring)
Issues/policies in family, school, and community that drive the professional practice of community-based youth work. Practical projects explore what it means to be local, to build social capital for youth, and to involve youth in community change.

YOST 5960. Seminar in Youth Development Leadership. (1 cr. [max 4 cr.] ; S-N or Audit; Every Fall, Spring & Summer)
Group study of topics/issues. Course proposal, educational program development. Students participate in co-created learning experience with a group of peers. Four-course sequence. prereq: YDL student or instr consent

YOST 5962. Leadership Field Experience: Youth Development. (4 cr. ; S-N only; Every Fall, Spring & Summer)
Demonstration of leadership in practice. Project on youth, experiential pedagogy, and community/program settings. Focuses on public policy, advocacy, evaluation, pedagogical issues, program design, curriculum development, or applied research. prereq: YDL student