GC 1084. Academic Development Seminar: Supplemental Instruction in Mathematics. (1 cr; SP–BC) Specific content, advising, and study skills for degree or certificate approval after one 1081-1085 regis (BC-F only) Introduces students to successful methods of study in mathematics courses, including note taking, exam preparation, and stress management. Necessary math background, specific problem-solving techniques, and the application of mathematical concepts associated with disciplinary content.

GC 1085. Academic Development Seminar: Supplemental Instruction in Composition. (1 cr; SP–BC) Specific content, advising, and study skills for degree or certificate approval after one 1081-1085 regis (BC-F only) Introduces students to successful methods of study in composition courses, including note taking, exam preparation, and stress management. Specific writing tasks, research methods, and essay and presentation styles associated with disciplinary content.

GC 1086. Freshman Seminar. (2 cr; SP–BC; A-F only) Awareness of roles, identity, needs, and interactions with diverse groups. Expectations, resources, and challenges associated with transition into college. Speakers, journals/portfolios, technology, reading and writing assignments, and classroom exercises and experiences.

GC 1111. Science in Context: Weather and Climate. (4 cr; BC) Basic scientific principles and concepts are applied in the context of the atmosphere and its weather and climate. Learn how familiar types of weather happen, forecast weather, and predict regional climates. (3 lect, 2 lab hrs per wk)


GC 1131W. Principles of Biological Science. (4 cr; SP–BC) Biodiversity/classification, genetics, evolution, ecology, life cycles/reproduction, cell theory, chemical bases for life from a “how-we-know” perspective, relevance to modern life. Inquiry-based, collaborative lab.

GC 1132. Essentials of Human Anatomy and Physiology. (3 cr; SP–BC) Health/disease examined by organ system (e.g., urinary, reproductive). Access to lecture material/activities via Internet. Lecture/lab.

GC 1133. Nature Study. (3 cr; SP–BC) Natural history for students with little or no training in biology. Minnesota plants/animals examined in field from viewpoint of informed amateur naturalist. Life cycles and natural habitat associations, field observation and identification techniques, popular and scientific literature.

GC 1135. Human Anatomy and Physiology. (4 cr; SP–BC) Health/disease examined by organ systems (e.g., urinary, reproductive). Access to instructional material/activities via Internet. Lecture/lab.

GC 1137. Biological Science: The Human Body Laboratory. (2 cr; QR–Transition course; completion of GC 1132 under quarter system; offered for a limited number of semesters) Lab experience: - Form and function of gross mammalian anatomy through dissection of preserved materials (skeletal, muscular, digestive, circulatory, nervous, urinary, and reproductive systems). Microscopic examination of tissues and organs. Exploration of mammalian physiology, with emphasis on experiments, analyzing, and interpreting data.

GC 1161. Solar System Astronomy. (4 cr; SP–BC) Planets, satellites, asteroids, comets, and meteorites. The celestial sphere, coordinate systems, time intervals, motions and physical attributes of planets and their satellites, instruments used by astronomers, and space probes. (UC only)

GC 1162. Stellar Astronomy. (4 cr; SP–BC) Large-scale structure of universe. Definition of magnitude, angular distance, parallax, distance, size. Sun, spectral classification of stars, white dwarfs, neutron stars, black holes, clusters, nebulae, galaxies, quasars, cosmology, and cosmogony. (UC only)

GC 1163. Physical Systems: Principles and Practices. (4 cr; QR–0615 or 0621 or equiv; SP–0713 or 0721 or equiv; BC) Principles/concepts that govern matter, energy, and motion. Structure/states of matter, potential/kINETIC energy, thermodynamics, mechanics, electricity, radiant energy, sound, light, and waves. (UC only)

GC 1166. Principles of Chemistry. (3 cr; QR–0621 or equiv; SP–0713 or 0721 or equiv; BC) Problem-solving. Classification of matter, elements, atomic/molecular structure, compounds, mole calculations, chemical bonding, empirical formulas, chemical reactions, stoichiometry, bond energy, enthalpy, gases/gas laws, solutions, solution concentrations, acids, bases, qualitative equilibrium.

GC 1171. Physical Geology. (4 cr; SP–BC) Development of common land features (valleys, mountains, rivers, lakes) and processes responsible for their origin and change. Types of surface materials. Movements inside Earth and their effects on its surface. Lab: mineral and rock analysis, topographic map reading, landform identification, landscape interpretation. (3 lect, 4 lab hrs per wk)

GC 1172. Historical Geology. (4 cr; SP–BC) Development of earth’s physical and chemical features through time, with changing patterns of life as a response. Problem-solving, logical deductions from facts/stress deduction, landscape interpretation of rocks, fossils, geologic maps, ancient environments, and geographies. (3 lect, 4 lab hrs per wk)


GC 1211. People and Problems. (4 cr; SP–BC) Explore social problems that arise in our diverse society. Sociology is the chief, but not exclusive, source of concepts and theories used to analyze problems such as unemployment, social inequality, violence, and the environment. (15 hours in community involvement/service).

GC 1221. Minnesota History. (4 cr; SP–TC) Minnesota geography, resources, exploration, settlement, ethnicity, economics, and politics related to the Upper Midwest, the nation, and Canada. Researching and writing family or local history as part of the larger history of this region and nation.

GC 1231W. U.S. Growth of National Power. (4 cr; SP–BC) Political, technological, economic, and social aspects of the growth of national power in the United States and its impact on people in North America and abroad—from the Colonial Era to present.

GC 1233. U.S. Government and Politics. (4 cr; SP–BC) Structure and process. How government institutions address the demands made on them in the following topics: foundations of government structure; institutions of power; links between people and government; government and social welfare, economic, military, and foreign policies.


GC 1251. World History: Since 1500. (4 cr; SP–BC) Political, economic, social, diplomatic, and intellectual aspects of major world cultures. Awareness of growing interdependence of global and international perspective on events that affect students’ lives. Classroom simulations, lecture, and discussion.

GC 1280. Psychology and Everyday Life. (3 cr; SP–BC) Using psychological research and theory for effective living. Introduction to stress, managing stress, maintaining physical and mental health, leadership, gender roles, and work roles. Readings, writing assignments, and class discussion. Development of appropriate study strategies for social science courses.

GC 1281. General Psychology. (4 cr; SP–BC) Individual instruction and computer technology help students develop as independent learners as they survey major psychological theories, concepts, and methods. Satisfies introductory psychology requirement for degree programs in life, health, education, and agricultural marketing and serves as prerequisite for advanced psychology courses.

GC 1285. Introduction to Cultural Anthropology. (4 cr; SP–BC) Human culture viewed as integrated system of learned and shared knowledge that guides behavior of all members of a given society. Anthropological perspective examines generalizations about existence of cultural diversity by analyzing and comparing the human condition in many contemporary cultures.

GC 1294. Economics in Contemporary Society. (4 cr; SP–BC) Provides students with basic knowledge of economic concepts used to understand current events and government policies. Surveys and analyzes the economic system (GDP, federal budget, fiscal and monetary policies, taxation, poverty, inflation, economic growth, unemployment, and international trade).


GC 1312. Identity, Community, and Culture: Connections in the Arts and Humanities. (4 cr; SP–BC; A-F only) Interdisciplinary, team-taught course explores how multicultural arts and literature deal with themes of identity and community. Lectures, discussions, interactive exercises, and audiovisual presentations. Students practice one of the arts in lab. Informal and critical writing.


GC 1364. Literature of the American Immigrant Experience. (3 cr; SP–BC) Literature by and about immigrants explores historical and contemporary American immigrant experiences (conditions leading to emigration, adjustments to and impact on the United States, inter-generational conflict). Readings include novels, poetry, expository prose, biographies, and oral histories.

GC 1365W. Literatures of the United States. (3 cr; SP–BC) Stories, poetry, essays, and drama by diverse U.S. writers (mid-19th century to present) depicting conflicts/challenges of life in various stratas of American culture. Addresses multicultural aspect of the “American story.”

GC 1366. Images of Women in Literature. (4 cr; SP–BC) Diversity of 20th-century American women writers. Focuses on feminist re-interpretations of the literary canon. Portrayals of women across various identities based on race, class, sexuality, age, and religion. Readings include novels, short stories, poetry, essays, and plays.

GC 1367W. Contemporary Literature: International Perspectives. (4 cr; SP–BC) Readings in fiction, poetry, drama, and autobiography from contemporary writing not originating in the United States. The focus will be comparative. Extensive written assignments, both formal and informal, as well as lecture and discussion.
Course Descriptions

GC 1371. Reading Short Stories. (3 cr; SP–BC)
The current short story format from diverse communities across North America, Africa, the Caribbean, and Europe. Emphasis on the written literature inspired by oral “storytelling,” storytelling as “theater,” and storytelling as communal endeavor.

GC 1374W. The Movies. (3 cr; SP–BC)
Aesthetics of feature-length films; work of selected contemporary filmmakers. Fundamentals of film study; mise-en-scène, editing, sound, photography, movement, screenplay, acting, and directing. Students write about films viewed in class.

GC 1421. Writing Laboratory: Basic Writing. (3 cr; SP–BC)
Develop academic reading, writing, and research skills. Students write in response to a variety of assignments, receive extensive one-on-one assistance, and work on computers. Clear and effective expression emphasized through writing and revision.

GC 1422. Writing Laboratory: Communicating in Society. (3 cr; SP–BC)
Conventions/skills of academic writing, reading, and research. How people communicate in society, perceive events/ideas, and think/write about them. Extensive use of computers for writing/research.

GC 1423. Writing Laboratory: Community Service Writing. (3 cr; SP–BC)
Writing description, research, and analysis based on work in community setting, and on readings and analysis. Students work three hours weekly at off-campus site for approximately seven weeks. Extensive research and writing practice. Requires use of microcomputer.

GC 1424. Writing Laboratory: Communicating in a Diverse Society. (3 cr; SP–BC)
Proficiency in academic writing, reading, research. Multicultural, thematic content. Extensive experience with computers as tools for writing/research.

GC 1454. Statistics. (4 cr; SP–BC)
Problem solving and decision making through collection, analysis, and interpretation of data. Organization and presentation of data, summary statistics, sampling, probability, distributions, estimation, correlation, hypothesis testing, contingency tables, chi-square. Uses groups and computers.

GC 1456. Functions and Problems of Logic. (3 cr; SP–BC)
Formal (symbolic) techniques (e.g., Venn diagrams, truth tables, formal proofs) for evaluating validity of arguments. Translating English statements into symbolic system. Structure/complexity of valid reasoning.

GC 1461. Oral Communication in the Public Sphere. (3 cr; SP–BC)
Communication, ethics, and citizenship in interpersonal, group, and public contexts as well as understanding communication theory and experience through use of diverse verbal and nonverbal communication patterns and strategies. Individual and group activities including public presentations.

GC 1464. Group Process and Discussion in a Multicultural Society. (3 cr; SP–BC)
Nature of groups, how they form and function, what purpose they serve in U.S. society, and how leadership and other role behaviors emerge from their structure. Multicultural approaches to conflict management, diverse verbal and nonverbal communication patterns and strategies.

GC 1481. Creativity Art Laboratory: Experiences in the Media. (3 cr; SP–BC)
Learn about art by discussing, reading, writing about, and creating it. Explore artistic thinking by making art that reflects personal and cultural identity. Multicultural art projects explored through slides and videos. Develop critical skills to analyze, interpret, and evaluate artwork.

GC 1483. Music Laboratory. (3 cr; SP–BC)
Students read, write, perform, and compose music. Fundamentals include note names, rhythm and meter, scales, music textures, formal structure, and basic harmony. Open to students with or without music training.

GC 1485. Creativity: Photography. (4 cr; SP–BC)
Must have camera (DSM $10.30/adjustable controls preferred; UC only; BC)
Conceptual, technical, and historical aspects of photography as art. Hands-on experience with camera control, film development, enlarging, and printing in black-and-white. Individual/group critiques of student portfolios. Lab.

GC 1511. Introduction to Business and Society. (4 cr; SP–BC)
Role of business in the economic and social life of the nation, referring to the symbiotic relationship between business activity and the broader aspects of society. Environmentalism, consumerism, cultural diversity, economic systems, ethics, management, marketing, accounting and finance, and legal issues.

GC 1513. Principles of Small Business Operations. (3 cr; SP–TC)
Fundamentals of starting up, purchasing, owning, and operating a small business. Researching business opportunities, assessing competition, seeking financing, organizing and planning internal matters, and developing operating strategies.

GC 1534. Practical Law. (4 cr; SP–TC)
American legal process covering common everyday legal matters including courts, crimes, personal injury, contracts, consumer transactions, property ownership and insurance, debtor-creditor relations, banking, bankruptcy, and international law.

GC 1540. Accounting Fundamentals I. (3 cr; SP–BC)
Students learn to “keep books.” Make accounting entries from business transactions in journals, post to ledger accounts, complete the accounting cycle, and prepare and interpret financial statements.

GC 1571. Introduction to Microcomputer Applications. (4 cr; SP–BC)
American legal process covering common everyday legal matters including courts, crimes, personal injury, contracts, consumer transactions, property ownership and insurance, debtor-creditor relations, banking, bankruptcy, and international law.

GC 1573. Introduction to Word Processing. (2 cr; SP–BC)
Hands-on word processing, data manipulation, data analysis, Word processing: enter, edit, format text. Spreadsheets: enter data, do calculations, make decisions based on data. Database management: manipulate/filter sets of data.

GC 1575. Introduction to Computer Applications. (4 cr; SP–BC)
Hands-on word processing using Microsoft Word. Enter, edit, and format text (paragraphs/sections, styles, headers/footers, footnotes, tables). Work with files. Homework assignments/exams done on computer.

GC 1574. Introduction to Spreadsheets. (2 cr; SP–BC)

GC 1575. Introduction to Computers and the Internet. (4 cr; SP–BC)
Hands-on training in computer literacy. Hardware (microprocessor, memory, storage), software (operating systems/applications), Internet (Web, e-mail, Telnet, FTP), multimedia.

GC 1721. Marriage, Family, and Personal Fulfillment. (4 cr; SP–TC)
Psychological, social, and biological aspects of marriage and family living. Helping students gain understanding of, and self-awareness concerning, such areas as dating, mate selection, getting married, having children, and sexuality. Adjustments outside of traditional marriage and family.

GC 1814. American Indian Law. (3 cr; SP–TC)
Federal Indian law. History of native legal issues from pre-European contact to present times in conjunction with applicable cultural norms practiced by various tribes.

GC 1816. African-American Literature. (3 cr; SP–BC)
Short stories, novels, poetry, and drama by African American writers evaluated in the context of internationalization. Interconnection between literature of African Americans in the United States and other international writers of African descent.

GC 1836. Asian-American Literature. (3 cr; SP–BC)
Historical/contemporary prose, poetry, and drama analyzed to assess artists’ interpretations of their identity. Issues of generational conflict/peer pressure, gender roles.

GC 1851. Multicultural Relations. (3 cr; SP–BC)
Nature of historical and contemporary multicultural relationships within American society. Intercultural, interethnic, interracial, and cross-gender relationships from historical and contemporary perspectives.

GC 1901. Freshman Seminar: Environmental Issues. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about environmental issues. Intensive, small-group setting.

GC 1902. Freshman Seminar: Cultural Diversity. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about cultural diversity. Intensive, small-group setting.

GC 1903. Freshman Seminar: Citizenship and Public Ethics. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about citizenship/public ethics. Intensive, small-group setting.

GC 1904. Freshman Seminar: International Perspectives. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about international perspectives. Intensive, small-group setting.

GC 1906W. Freshman Seminar: Environmental Issues. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about environmental issues. Intensive, small-group setting.

GC 1907W. Freshman Seminar: Cultural Diversity. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about cultural diversity. Intensive, small-group setting.

GC 1908W. Freshman Seminar: Citizenship and Public Ethics. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about citizenship/public ethics. Intensive, small-group setting.

GC 1909W. Freshman Seminar: International Perspectives. (3 cr; SP–BC)
Reading, discussion, critical analysis, and writing about international perspectives. Intensive, small-group setting.

GC 1990. Special Topics. (1-8 cr; SP–BC)
Various topics related to instructor’s areas of expertise.

GC 1993. Directed Study. (1-8 cr; SP–BC)
Student initiated project in consultation with faculty member to work collaboratively with them.

GC 1996. Internship. (1-8 cr; SP–BC)
Teaching internships to teach skills, techniques, and research in disciplinary content associated with college teaching. Community internships teach goals and functions of public/community agencies and exploration of career goals. Internships supervised by faculty member and site supervisor.
GC 223W. Psychology of Human Development (4 cr; OP–1281 or Psy 1001; SP–[1283;1281 or Psy 1001], [1421 or Biol 1011]).

Biosocial, cognitive, psychosocial development of individuals over life span. Writing intensive. Computer assisted instruction, video, small group discussion.

GC 2357. World Religious Beliefs (4 cr; OP–[1242 or equiv], 15 cr; SP–1375: [12 cr; #]).

Beliefs, rituals, attitudes of world’s major living religions. Parallel “little traditions” in their historical, social, cultural settings. Intensive writing/reading.

GC 2375W. Film and Society. (4 cr; OP–[1242 or equiv], 15 cr; SP–1375: [12 cr; #]).

Films as medium for social/cultural expression. Problems of individuals’ values or identities in conflict with societal demands/constraints (racism, sexism, urban living, family living, aging, politics, education, sexual mores, adolescence). Social issues in contemporary documentary films.

Genetics, Cell Biology, and Development (GCD)

Department of Genetics, Cell Biology, and Development

College of Biological Sciences

GCD 3022. Genetics. (3 cr; OP–§Biol 5003; Biol 1009 or 1202; not for biology majors; SP–§Biol 4003; Biol 1002 or 1009; not for biology majors).

Mechanisms of heredity, their implications for biological populations, and applications to practical problems.

GCD 4015. Genetics Laboratory. (2 cr; OP–3022 or Biol 5003 or BiolC 4332; SP–3022 or Biol 4003 or BiolC 4332).

Introduction to computational techniques used in genetic analyses. Although experiments may vary from semester to semester, genetic experiments with model systems ranging from viruses to plants and animals are performed.

GCD 4025. Cell Biology Laboratory. (2 cr; OP–Biol 5004; SP–Biol 4004 or #).

Experimental approaches to cell structure, function, and replication. Microscopy, autoradiography, cell fractionation, molecular/chemical analyses.

GCD 4111. Histology: Cell and Tissue Organization. (4 cr; OP–Biol 5004 or #; SP–Biol 4004 or #).

Structure and function of vertebrate tissues and organs. Lectures combine electron microscopy, light microscopy, physiology, and cell biology of higher animals. Labs concentrate on light microscopy of mammalian tissues.

GCD 4134. Endocrinology. (3 cr; OP–Biol 3011 or Biol 3111 or BiolC 3021 or BiolC 5331 or #; SP–Biol 3211 or Biol/BiolC 3021 or BiolC 4331 or #).

Survey of structure and function of invertebrate and vertebrate endocrine systems.

GCD 4143. Human Genetics. (3 cr; OP–3022 or Biol 5003 or SP–3022 or Biol 4003 or #).

Principles of human genetics at the molecular, cellular, individual, and populations levels. Chromosomal and biochemical disorders; gene mapping; mutation and natural selection; variation in intelligence and behavior; genetic screening, counseling and therapy.


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.

GCD 4161. Developmental Biology. (3 cr; OP–[Biol 3011 or 3111; BiolC 3111 or 3311; Biol 4004; BiolC 4004; SP–Biol 4003; Biol 4004]).


GCD 4793W. Directed Studies: Writing Intensive. (1-7 cr; max 7 cr; OP–#; more than 10 cr of [5970, 5990]) may count toward major; SP–#; more than 7 cr of [4793, 4794, 4993, 4994]) may count toward major; S-N only).

Individual study on selected topics or problems. Emphasizes selected readings, use of scientific literature. Writing intensive.

GCD 4794W. Directed Research: Writing Intensive. (1-7 cr; max 15 cr; OP–#; more than 10 cr of [5970, 5990]) may count toward major; SP–#; more than 7 cr of [4793, 4794, 4993, 4994]) may count toward major; S-N only).

Laboratory or field investigation of selected areas of research. Writing intensive.

GCD 4993. Directed Studies. (1-7 cr; max 7 cr; OP–#; 10 cr max of 5970 or 5990 may count toward major; SP–#; more than 7 cr max of 4993 and/or 4994) may count toward major; S-N only).

Individual study on selected topics or problems with emphasis on selected readings and use of scientific literature.

GCD 4994. Directed Research. (1-7 cr; max 7 cr; OP–#; 10 cr max of 5970 or 5990 may count toward major; SP–#; more than 7 cr max of 4993 and/or 4994) may count toward major; S-N only).

Laboratory or field investigation of selected areas of research.

GCD 5034. Intermediate Molecular Genetics. (3 cr; OP–Biol 5003; Biol 5004; SP–Biol 4003; Biol 4004).

Molecular genetics of prokaryotes and eukaryotes concentrating on characterization and regulation of expression of genes, and techniques used to study gene expression. For advanced bioscience undergraduates and for graduate students not majoring in molecular genetics.

GCD 5036. Intermediate Cell Biology. (3 cr; OP–Biol 5004 or #; SP–Biol 4004 or #).

Current literature in cell biology with overview of discussed topics. Selected scientific papers illustrate new concepts in, and experimental approaches to cell organization and function. Topics vary but include membranes, secretion, endocytosis, the cytoskeleton, and the nucleus.

GCD 5574. GIS and the Internet. (1.5 cr; SP–Geog 5561 or equiv, status in MGIS program or #).

Introduction to the Internet in GIS applications. Topics include GIS data sources on the Internet, the role of the Internet in information dissemination, Internet capabilities for interactive mapping and issues surrounding the development of GIS-related Web sites.

GCD 5575. Surveying and the Global Positioning System (GPS). (3 cr; SP–Geog 5561 or equiv, status in MGIS program or #)

Introduction to GPS (Global Positioning System) and other surveying techniques of use to GIS professionals. Topics include geodesy, data adjustment, datums, ellipsoids, coordinate systems, and transformations.

GCD 5576. Raster-Based GIS. (1.5 cr; SP–Geog 5561 or equiv, status in MGIS program or #).

Introduction to raster-based geographic information systems. Focuses on raster data sets and the use of grid-based models. Practical experience is offered using a widely-available raster GIS package.

GCD 5577. Spatial Data Administration. (3 cr; SP–Geog 5561, Geog 5563 or equiv, status in MGIS program, familiarity with computer operating systems or #).

Theory and application for the administration of geographic databases including the topics of quality assurance, development planning and management, maintenance, access and distribution, and documentation.

GCD 5590. Special Topics in GIS. (1-3 cr; max 6 cr; SP–#).

Special topics in geographic information science (GIS). Topics vary according to student needs, technological developments in field.

Geography (Geog)

Department of Geography

College of Liberal Arts

Geog 1301V. Honors: Introduction to Human Geography. (4 cr; SP–Honors).

Geography of population, principal ways of life. Capacity of earth for future population.

Geog 1301W. Introduction to Human Geography. (4 cr).

Geography of population and principal ways of life; capacity of earth for future population.

Geog 1403V. Honors: Biogeography of the Global Garden. (4 cr; SP–Honors).

Geography of biodiversity/productivity, from conspicuous species to those that cause human disease, economic hardship. Roles played by evolution/extension, fluxes of energy, water, biochemicals, dispersal. Experiments demonstrating interactions of managed/unmanaged biotic with hydrologic cycle, energy budgets, nutrient cycles, carbon budget, soil processes.


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, dispersal. Experiments demonstrating interactions of managed and unmanaged biotic with the hydrologic cycle, energy budgets, nutrient cycles, the carbon budget, and soil processes.

Geog 1425. The Atmosphere. (3 cr; SP–§Biol 1425).

A pre-calculus introduction to the nature of the atmosphere and its behavior. Topics 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; weather forecasting.

Geog 1426W. The Atmosphere Laboratory. (1 cr).

Lab offered in conjunction with 1425. Topics include weather observation; meteorological instrumentation; statistical analysis of weather observations and climatological data; map analysis and weather forecasting.

For definitions of course numbers, symbols, and abbreviations, see page 289.
Course Descriptions

Geog 3102. Geography of the United States and Canada. (3 cr) A survey of the way in which the aspirations and abilities of diverse groups of people interact with the complexities of the natural environment to produce the contemporary political, economic, and cultural differentiation of the United States and Canada.

Geog 4311. Geography of Minnesota. (3 cr) 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 3411. Africa. (3 cr) Regional differentiation of human groups and environments, cultural contact and problems of underdeveloped countries south of the Sahara.

Geog 4375. Minority Settlement in America. (3 cr) Comparative analysis of minorities in American cities, including migration patterns, residential patterns, socioeconomic characteristics, public and private community enterprises, and class in urban structure.

Geog 4376. Political Ecology of North America. (3 cr) Social production of nature in North America related to questions of social/environmental justice. Economic, political, cultural, ecological relations that shape specific urban and rural environments, social movements that have arisen in response to environmental change. Importance of culture/identity in struggles over resources/environments.

Geog 3378. Third World Underdevelopment and Modernization. (3 cr) Processes underlying socioeconomic change in the Third World. Evolving global economy and internal spatial and socioeconomic conditions. Theories of modernization, development, and underdevelopment.

Geog 3379. Environmental Development in the Third World. (3 cr) Basic concepts for historical geography of capitalist development, geographically/structurally specific case studies, likelihood of social and environmental sustainabiliy.

Geog 3381W. Population in an Interacting World. (4 cr) 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 3401V. Honors: Geography of Environmental Systems. (4 cr; A-F only) Examination of geographical patterns, dynamics, and interactions of atmospheric, hydrospheric, geomorphic, pedologic, biologic systems as the context for human population development, and resource use patterns.

Geog 3411W. Geography of Health and Health Care. (3 cr; SP–§5411) 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 3431. Introduction to Plant and Animal Geography. (3 cr) World distributions of plants and animals; biological and ecological background; the geographical picture; the paleontological record.

Geog 3511. Principles of Cartography. (4 cr; SP–3 cr in geog or #) History and development of U.S. academic cartography, coordinate systems and map projections, data classification and symbology, 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.

Geog 3531. Numerical Spatial Analysis. (3 cr) 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 3561. Principles of Geographic Information Science. (4 cr; SP–1 cr or sr) 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.

Geog 3561H. Honors: Principles of Geographic Information Science. (4 cr; SP–Honors, 1 cr or sr) Introduction to study of geographic information systems (GIS). GIS application domains, data models, sources, analysis methods, output techniques. Lectures, readings, hands-on experience with GIS software.
Course Descriptions

Geological Engineering (GeoE)

Department of Civil Engineering
Institute of Technology

GeoE 3111. How to Model It: Building Models to Solve Engineering Problems. (3 cr; QP–IT student) Problem formulation design and construction of models, and drawing conclusions from modeling results. Students learn how to use computer-based modeling tools working in small groups on a number of problems from various engineering contexts.

GeoE 3301. Soil Mechanics 1. (3 cr; QP–IT student; AEM 3016; SP–IT student; AEM 3031; A–F only) Index properties and soil classification; Effective stress; Permeability and seepage; Stresses from elasticity theory. One-dimensional compression and consolidation; settlements; Compaction; cut and fill problems.

GeoE 3311. Rock Mechanics 1. (3 cr; QP–Upper div IT or grad student; AEM 3300; SP–IT student; AEM 3301; A–F only) Classifications and index properties. Behavior of intact rock and rock masses. Stereographic projections; kinematic analysis of rock slopes; Reinforcement. Foundations on rock.

GeoE 4102W. Capstone Design. (3 cr; QP–SR or IT student or grad IT student; AEM; GeoE or Geo Upper division or graduate student; A–F only) Team participation and 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 and specifications, and award of contracts.

GeoE 4111. Engineering Systems Analysis. (3 cr; QP–Upper division IT or grad; SP–Upper division IT) Systems Analysis focuses on a broader “systems” approach of various problems. The techniques of operations research—decision making, engineering network, analysis, simulation, linear programming, and expert systems—are used to represent systems, and especially to assess trade-offs.

GeoE 4121. Computer Applications in Civil Engineering I. (3 cr; QP–CE or GeoE upper div; 3202, Math 3251, Math 3252; SP–CE or GeoE upper div; 3101, Math 2243, Math 2263; A–F only) Advanced application of computer tools and methods in solving partial differential equations resulting from the analysis of civil engineering problems. The major tools used will be Spreadsheet and Visual Basic programming. Methods covered could include: finite differences, boundary value, finite element and control volume finite element.

GeoE 4301. Soil Mechanics II. (3 cr; QP–Upper division IT or grad student; AEM 3500; SP–Upper division student in IT; 3301, CE 3031, or A–F only) Traction and stress. Mohr-Coulomb failure criterion. Experiments on strength and angle of internal friction. Earth pressure theories; rigid and flexible retaining structures applied to underground excavations. Design of cut and fill structures; rock-support interaction. In situ stresses and excavation shape. Instrumentation and monitoring.

GeoE 4311. Rock Mechanics II. (3 cr; QP–IT or grad IT major; AEM 5302 or SP–Upper division or grad student in IT; 3311, CE 3311, or A–F only) Failure mechanisms in rock masses. Elasto-plastic solutions applied to underground excavations. Design of linings and support systems; rock-support interaction. In situ stresses and excavation shape. Instrumentation and monitoring.

GeoE 4341. Engineering Geostatistics. (3 cr; QP–Stat 3091 or SP–Upper div or Grad student; SP–GeoE, CE or Geo Upper division or grad student; Stat 3021 or A–F only) Problem solving and decision making in civil and geological engineering using applied statistics. Emphasis on spatially correlated data, e.g. geologic site characterization, and spatial sampling design.

GeoE 4351. Groundwater Mechanics. (3 cr; QP–IT or grad student; 3400 or SP–Upper division or grad student; CE 3502 or A–F only) Basic equations. Shallow confined and unconfined flows, two-dimensional flow in the vertical plane, and transient flow. Flow from rivers and lakes toward wells. Determination of streamlines and pathlines in two and three dimensions. Introduction to contaminant transport. Elementary computer modeling.

GeoE 4352. Groundwater Modeling. (3 cr; QP–IT or grad student; 5425, or SP–Upper division or grad student in IT; 4351, CE 4351, or A–F only) Principle of analytic element method. Mathematical and computer modeling of single and multiple aquifer systems. Application to actual field problems. Theory and application of contaminant transport models, including capture zone models.

GeoE 5311. Experimental Geomechanics. (3 cr; QP–Upper div or grad student; 5603; SP–Upper division or grad student; 4301, CE 4301 or A–F only) Machine stiffness; closed-loop testing. Small-strain testing. Determination of deformation; strain gages, LVDTs, accelerometers, and associated circuits. Direct and indirect testing. Material behavior: experiments on anisotropic, damaged, and fluid-filled solids.

Geo 1003. Dinosaur Evolution, Ecology, and Extinction: Introduction to the Mesozoic World. (3 cr; QP–CE 3300, CE 5301; SP–Upper division or grad student; 4301, CE 4301 or A–F only) Evolution of life on Earth. Interrelationships of plate tectonics, climate change and organic evolution that led to the present ecosystem. Impacts of hominid evolution on Earth systems and of geological processes on human society.

Geology and Geophysics (Geo)

Department of Geology and Geophysics
Institute of Technology


Geo 1003. Dinosaur Evolution, Ecology, and Extinction: Introduction to the Mesozoic World. (3 cr; QP–CE 3300, CE 5301; SP–Upper division or grad student; 4301, CE 4301 or A–F only) Evolution of life on Earth. Interrelationships of plate tectonics, climate change and organic evolution that led to the present ecosystem. Impacts of hominid evolution on Earth systems and of geological processes on human society.


Geo 1006. Oceanography. (4 cr) 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.
Course Descriptions

Geo 1008. Faces of the Earth. (3 cr) History of pre-17th century ideas of geology in China, Mesoamerica, and Europe. Evolution of modern geology from travelers’ tales, cosmology, mapmaking, minerals, volcanoes, and earthquakes. Plate tectonic hypothesis and current explanations of geological phenomena. Relations between humans and nature.


Geo 1011. Volcanoes of the Earth. (3 cr) Nonmathematical introduction to volcanoes, their origin and distribution on Earth and through time; theory of plate tectonics, origin of magmas and the Earth’s interior; products of volcanoes, types of eruptions and hazards, and impact on climate, vegetation, and society.

Geo 1019. Our Changing Planet. (4 cr; QP—§1019, SP—§1019, §1019) Interdisciplinary study of Earth as a set of interacting, evolving systems—solid Earth, oceans, atmosphere, and biosphere—intertwined with the sun and stars. Cycling of matter and energy in Earth systems, their equilibria, and the effect of natural and human perturbations.

Geo 1081. Conspiracies, Fraud, and Deception in Earth History. (1 cr) Famous cases of geological deception from three centuries are presented in the intellectual context of their time and demonstrate the prevailing power of scientific reasoning.

Geo 1102. Introduction to Earth History. (3 cr; QP—§1002, SP—§1002) Evolution of life on Earth. Interrelationships of plate tectonics, climate change, and organic evolution that led to the present ecosystem. Impacts of hominid evolution on Earth systems and of geological processes on human society.

Geo 2111H. Honors Earth Science. (4 cr; QP—§1001, IT Honors Cur or IT Honors Office consent; §1001, IT Honors Cur or IT Honors Office consent; A-F only) Application of physics and chemistry to the structure and dynamics of the Earth.

Geo 2201. Geodynamics I: The Solid Earth. (3 cr; QP—Phys 1251, Phys 1252; SP—Phys 1301) Dynamics of the solid Earth, particularly the tectonic system. Seismology, internal structure of the Earth, Earth’s gravity and magnetic fields, paleomagnetism, global plate tectonics, and tectonic systems; field trip.

Geo 2301. Mineralogy. (3 cr; QP—Chen 1051, Math 1252 or #; SP—Chem 1021, Math 1271 or #) Crystallography, crystal chemistry and physics. Physical and chemical properties, crystal structures and chemical equilibria of the major mineral groups. Lab includes crystallographic, polarizing microscope, X-ray powder diffraction exercises, hand-specimen mineral identification.

Geo 2302. Petrology. (3 cr; QP—3401 or #; SP—2301 or #) Magmatic and metamorphic processes, with an emphasis on plate tectonic interpretation of rock sequences.

Geo 2303W. Geochemical Principles. (3 cr; QP—Chen 1051, Chem 1052; SP—Chen 1021, Chem 1022, Math 1271) Origin of the elements (nucleosynthesis, elemental abundances), geochemical classifications, isotopes (radioactive and stable), phase equilibria, and models of Earth’s geochemical evolution. Basic geochemical processes that produced Earth’s lithosphere, hydrosphere, and atmosphere.


Geo 3002. Climate Change and Human History. (3 cr) Causes of long-/short-term climate change. Frequency/magnitude relationship of climate change and their geological 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.


Geo 3093. Problems in Geology and Geophysics: Junior. (1-4 cr [max 6 cr]; QP—, A-F, SP—) Geophysical or geological problems studied independently under the direction of a faculty member.

Geo 3202. Geodynamics II: The Fluid Earth. (3 cr; QP—2301; SP—2201) Dynamics of the fluid Earth, mainly surface processes and convection.

Geo 3401. Geochronology and Earth History. (3 cr; QP—3031; SP—2300) Modern high precision techniques for quantifying geologic time. Litho-, bio-, and chrono-stratigraphic correlation techniques for reconstructing geologic history.

Geo 3870. Modeling Workshop. (1 cr [max 2 cr]; QP—Ge or Geophy or GeoPhys major or #; SP—Ge or Geophy or GeoPhys major or #) Modeling of geologic or geophysical systems.

Geo 3880. Laboratory Workshop. (1 cr [max 2 cr]; QP—Ge or Geophy or GeoPhys major or #; SP—Ge or Geophy or GeoPhys major or #) Geologic or geophysical lab study.

Geo 3880. Field Workshop. (1 cr [max 2 cr]; QP—Ge or Geophy or GeoPhys major or #; SP—Ge or Geophy or GeoPhys major or #) Geologic or geophysical field study.

Geo 3911. Introductory Field Geology. (4 cr; QP—3202, #; SP—2202, A-F only) Geologic mapping on topographic maps and aerial photos; field identification of igneous, sedimentary and metamorphic rocks; measurement of stratigraphic sections; study of structural and geomorphic features.

Geo 4010. Undergraduate Seminar: Current Topics in Geology and Geophysics. (1-4 cr [max 12 cr]; QP—#) Topics in geology and geophysics investigated in a seminar format.

Geo 4093. Problems in Geology and Geophysics: Senior. (1-4 cr [max 6 cr]; QP—A-F, SP—) Nonstructured research course enabling seniors to engage in independent research under faculty supervision.

Geo 4094. Senior Thesis. (2 cr [max 4 cr]; QP—Sr, Geo or GeoPhys major; SP—Sr, Geo or GeoPhys major) Nonstructured research course enabling senior-level majors to engage in independent research under faculty supervision. Select problems according to individual interests and in consultation with faculty committee. Thesis and oral defense.

Geo 4203. Principles of Geophysical Exploration. (3 cr; QP—Phys 1253; SP—Phys 1302) Seismic exploration (reflection and refraction); potential techniques (gravity and magnetics) and electrical techniques of geophysical exploration.

Geo 4204. Geomagnetism and Paleomagnetism. (3 cr; QP—3201, Phys 1251, Math 1251 or #; SP—2201, Phys 1302, Math 1272 or #) 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.

Geo 4211. Solid Earth Geophysics I. (3 cr; QP—3201, Phys 1253; SP—2201, Phys 1302; A-F only) Basic elasticity, basic seismology, and physical structure of the Earth’s crust and deep interior.

Geo 4212. Solid Earth Geophysics II. (3 cr; QP—SP—2201, Phys 1302, Phys 1302; A-F only) Dynamics of the solid Earth, mostly mantle and core; seismic tomography, geothermal measurements, gravity, time-dependent deformation of the Earth, computer modeling.

Geo 4221. Application of Magnetism in the Natural Sciences and Engineering. (2 cr; QP—Phys 1251; SP—Phys 4221, Phys 1302) Multidisciplinary application of magnetism and magnetic phenomena. Survey for nonspecialists covers fundamental principles of natural and this ubiquitous phenomenon is used in a variety of science and engineering disciplines. Physics of magnetism, rock magnetism, biomagnetism, magnetic sensors, and magnetic recording.

Geo 4301. Igneous and Metamorphic Petrology. (4 cr; QP—3402, Chem 5501, Math 2361 or #; SP—2302, Chem 3001, Math 2243 or #) Theoretical course that develops basic thermodynamic tools and chemographic analysis for interpretation of chemical processes in igneous and metamorphic rocks. Lab, field trip, and problem sets.

Geo 4501. Structural Geology. (3 cr; QP—3402, 5101 or #; SP—2302, 3401 or #) Fundamental concepts related to deformation of Earth’s crust; processes associated with deformation, faulting, folding, and fabric development; labs and recitations include solving problems and conducting physical and numerical experiments. Field trips.

Geo 4502. Tectonic Styles. (3 cr; QP—5201 or #; SP—4501 or #) 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.

Geo 4503. Neotectonics. (4 cr; QP—5201 or #; SP—4501 or #) Integration of diverse elements of geology, geodesy, and geophysics to examine recent and active tectonics of the Earth’s lithosphere; extensional, compressional and wrench tectonic regimes with case studies around the world; modern plate motions, geodetic techniques, seismic anisotropy, climatically driven tectonics.

Geo 4601. Limnology. (3 cr; QP—§EEB 5601, Chem 1052 or #; SP—§EEB 4601, Chem 1002 or #; A-F only) Description and analysis of lakes and other aquatic environments, beginning with the origins and progressing through lake physics, chemistry, and biology. Interrelationships among these topics and effects of human activities.

Geo 4602. Sedimentology and Stratigraphy. (3 cr; QP—3402; open only to IT upper div majors in geology, geophysics, geo-engineering or CLAjr or sr majors in geology or #; SP—2301, 2302 or #) Interpretation of the origin of sedimentary rocks through application of basic physical and chemical principles, understanding of modern depositional environments, petrographic microscopy, basin dynamics, and stratigraphy.
Field and lab methods used to obtain information about environmental conditions in aquatic environments and to measure the abundance of aquatic organisms, especially in freshwater. Field and lab instruments, sampling devices, microscopy, water chemistry, and data analysis.

**Geo 4631. Earth Systems: Geosphere / Biosphere Interactions.** (3 cr; QP–EEB 5004, 3202, 3301 or #; SP–EEB 4651, 2303, 3202, or #) Interdisciplinary study of global-change forcing mechanisms, feedbacks and dynamics on various time scales, using paleorecord to illustrate processes.

**Geo 4701. Geomorphology.** (3-4 cr; QP–1001, Math 1031 or SP–1001, Math 1031 or #) Origin, development, and continuing evolution of landforms and processes in various environments. Environmental implications. Weathering, slope and shore processes, fluvial erosion and deposition, and region processes, glacial processes.

**Geo 4703. Glacial Geology.** (4 cr; QP–1002 or #; SP–1001 or 1004 or #) 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.

**Geo 4911. Advanced Field Geology.** (4 cr; QP–3111, #; SP–3911, # A-F only) Geologic mapping: study of igneous, metamorphic, and sedimentary rocks; structures and surficial features; problems solving. Paper required.

**Geo 4921. Field Geophysics.** (4 cr; QP–3111, #; SP–3911, # A-F only) Gravity, magnetics, seismic refraction and reflection, electrical resistivity and electromagnetic methods. Attention to near-surface and upper-crustal problems, concentrating on proper field design and methods. Interpretational methods include preliminary “rule of thumb” methods as well as quantitative computer modeling.


**Geo 5002. Earth History for Teachers.** (4 cr; QP–1002, ed degree; SP–1002, ed degree) Evolution of life on Earth. Interrelationships of plate tectonics, climate change, and organic evolution leading to present ecosystem. Impact of hominid evolution on Earth systems and geological processes on human society. Required project designed to enhance ability to teach Earth history to K-12 students.

**Geo 5003. Dinosaurs Evolution for Teachers.** (3 cr; QP–1003, ed degree; SP–1003, ed degree) Dinosaurs and Mesozoic Earth used to introduce evolutionary, plate tectonic, climate change, and Earth systems. History of theories about dinosaurs illustrates principles and social aspects of scientific investigation. Required project designed to enhance ability to teach dinosaur evolution to K-12 students.

**Geo 5006. Oceanography for Teachers.** (3 cr; QP–1006, ed degree) 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. Required design of modules for presenting course material to elementary or secondary school students.

**Geo 5108. Principles of Environmental Geology.** (3 cr; QP–Geo core courses through 5201 or equiv or #; SP–Geology majors: core curriculum through 4501 or #; nonmajors, 1 cr only) Human impact on geological environment and effect of geology/geologic processes on human life from an ecosystems and biogeochemical cycles perspective. Geologic limits to resources and carrying capacity of Earth. Land use planning, environmental impact assessment, ecoregion world models. Field project and trip.

**Geo 5201. Time-Series Analysis of Geological Phenomena.** (3 cr; QP–Math 3221 or #; SP–Math 2263 or #; A-F only) Time-series analysis of linear and nonlinear geophysical 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.

**Geo 5202. Geological Thermochronometry Modeling.** (3 cr; QP–Math 3263 or # or SP–Math 2263 or #; A-F only) Concept of heat and mass transfer processes in Earth’s crust and mantle. Quantitative study of thermomechanical processes and effects on Earth’s surface. Application on analytical and modern numerical techniques.

**Geo 5203. Mineral and Rock Physics.** (3-4 cr; QP–3201, Phys 1253, SP–2201, Phys 1302) Physical properties of minerals and rocks as related to the composition and dynamics of the Earth’s crust, mantle, and core.

**Geo 5301. Aquatic Environmental Geochemistry.** (3 cr; QP–Chem 5501 or #; SP–Chem 3501 or #) General principles of solution chemistry applied to geology. Solution-mineral equilibria. Redox processes in natural waters. Geochemistry of hydrothermal fluids. Environmental geochemistry.

**Geo 5302. Isotope Geology.** (3 cr; QP–3301 or #; SP–2303 or #; A-F only) Theory and uses of radioactive, radiogenic, and stable isotopes in geology. Radioactive dating, geothermometry, and tracer techniques in geologic processes.

**Geo 5353. Electron Microprobe Theory and Practice.** (2-3 cr; QP–3401, one yr chem and physics or #; SP–2301, one yr chem and physics or #) Theory and practice of characterizing solid materials with electron beam instrumentation, including the reduction of X-ray data to chemical compositions.

**Geo 5502. Advanced Structural Geology.** (3 cr; QP–5201 or #; SP–4501 or #) Analysis of structures and fabric of deformed rocks. Determination of states of stress and strain in rocks and of evolution of these with time. Deformation mechanisms. Extensive reading in journal literature. Field trips.

**Geo 5601. Advanced Sedimentology.** (4 cr; QP–5653 or #; SP–4602 or #) Modern techniques of sedimentary basin analysis focusing on interactions among the lithosphere, atmosphere, and hydrosphere. Sedimentary facies of modern and ancient systems, petrology of clastic and carbonate deposits, tectonic and paleoclimatic interpretations, paleocurrent analysis, diagenetic effects on subsurface fluid flow, and volcanic sedimentation.

**Geo 5602. Depositional Mechanics.** (3 cr; QP–5651, Math 2361 or #; SP–4602, Math 2243 or #) Mathematical mechanics of sediment transport applied to quantitative interpretation of sedimentary rocks.


**Geo 5703. Regional Geomorphology.** (2 cr; max 6 cr; QP–5201 or #; SP–Math 2263 or #) Geology of a particular region of the country, emphasis on its geomorphology. One-week field trip to the area is taken during spring break. May be taken for credit more than once if regions are different.

**Geo 5704. Glaciology.** (3 cr; QP–Math 3261 or #; SP–Math 2263 or #) Theories of glacier flow. Internal structures and heat flow in glaciers and ice sheets. Geomorphic features produced by glaciers. Reading assignments and problems.

**Geo 5705. Limnogeology and Paleoclimate.** (3 cr; QP–5601 or EEB 5601; SP–1001, 4601 or #) Systems study of modern and ancient lakes of the world as archives of environmental history, as natural resources, as biogeochemical and physical process models, and as basins in geologic history. Includes many case studies and examines aquatic signatures for interpreting paleoclimate.

**Geo 5711. Clastic and Karst Hydrogeology.** (3 cr; QP–5641, #; SP–5701, #) Karst hydrogeology and application of tracers to determine source, age, and mixing parameters of water in various natural reservoirs. Physical and chemical principles and processes operating in karst hydrogeology; use of natural and synthetic chemical and isotopic labels or tracers to follow movement and mixing of water through hydrologic cycle.

**Geo 5802. Scientific Visualization.** (3 cr; QP–CSci 3101 or CSci 3102 or CSci 3113 or #; SP–CSci 1107 or CSci 1113 or #) Visualization hardware and software, three-dimensional graphics, representation of scientific data, modeling, user interface techniques, output, commonly used algorithms, animation, case studies and examples.

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**Course Descriptions**

**German (Ger)**

**Department of German, Scandinavian, and Dutch College of Liberal Arts**

**Ger 0222. Reading German.** (0 cr; A-F only) Teaches only a reading knowledge of German. Enables graduate students to satisfy departmental requirements for an advanced degree. Intensive reading of German scholarly texts. Emphasizes reading, grammar, vocabulary. Authentic readings. Essay assignments.

**Ger 1001. Beginning German.** (4 cr) 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.** (4 cr; SP–1001) Listening, reading, speaking, writing. Emphasizes proficiency. Topics include free-time activities, careers, and culture of German-speaking areas.

Course Descriptions


Ger 1020. Beginning German Conversation. (2 cr [max 8 cr]; SP–1001 or equiv) Maintaining language skills through conversational practice. Emphasizes speaking skills, but also includes listening, reading, writing. Reviews essential grammatical structures.

Ger 1022. Beginning German Review. (4 cr; SP–Placement above 1001) 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.

Ger 1024. Advanced Intermediate German. (4 cr; SP–1003 or satisfactory completion of Entrance Proficiency Test with competency at the 1004 level) Intended for students who have not taken the Graduation Proficiency Test and need a review before taking it. Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by authentic readings and essay assignments.

Ger 1030. Intermediate German: Reading and Writing. (2 cr [max 8 cr]; SP–1003 or equiv) Consolidating/developing reading/writing skills.

Ger 311W. Conversation and Composition. (4 cr; SP–Passing score on the Graduation Proficiency Test) Designed to help students achieve proficiency in professional or academic German. Attention is paid to the refinement of oral and written expression. A systematic review of the most important communicative modes of language and a wide range of topics are designed to take students to the advanced level of proficiency.

Ger 312W. Conversation and Composition. (4 cr; SP–3011) 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.

Ger 3014. German Media. (3 cr; SP–3012) Introduction to German language media. Analysis of German language newspapers and magazines articles, the Internet, radio and television broadcasts. Close examination of the structure and style of journalistic prose.

Ger 3015. Professional German. (3 cr; SP–3012) Introduction to scholarly and professional German, specifically to the technical terminology and structures in social science articles and textbooks. Prepares students for the Foreign Language Immersion Program (FLIP).

Ger 3016. Techniques of Translation. (3 cr; SP–3012) Theory and practice of translation from and to German in a variety of genres. Idiomatics, stylistics, and cross-cultural aspects of translation will be highlighted.

Ger 3017. Advanced Communication Skills. (3 cr; SP–3012) Focuses on learning strategies for immersion students to process and understand academic language in texts and lectures in the FLIP courses.

Ger 3021. Business German. (3 cr; SP–3012 or equiv) Provides basic knowledge of German economy and business culture. Practice of language used in business field. Reading and discussion of German business documents, preparation of formal letters and reports.

Ger 3104W. Reading and Analysis of German Literature. (4 cr; SP–3012) Introduction to literary analysis; readings from drama, prose, and lyric from the 18th century to the present.

Ger 3410. German Literature Before 1750. (3 cr [max 9 cr]; SP–3104) Study of representative literary texts of the German High Middle Ages, Renaissance, Reformation, and the Baroque in cultural-historical context. Readings in modern German translation or English.

Ger 3421. 18th-Century German Literature. (3 cr; SP–3104) Investigation of German literature between 1720–1810, Enlightenment and Weimar Classicism in historical and cultural context. Reading and discussion of literary and philosophical works and aesthetic criticism.

Ger 3431. 19th-Century Literature. (3 cr; SP–3104) Literary and cultural exploration of 19th-century German literature through an investigation of the literary movements of Romanticism, Realism, and Naturalism. Reading and discussion of literary and critical texts.

Ger 3441. 20th-Century Literature. (3 cr; SP–3104) German literature from 1890 to present in historical, political, social, and cultural context.

Ger 3460. Women Writers in German Literature. (3 cr [max 9 cr]; SP–3104) A literary and historical investigation of selected German women writers from the theoretical perspectives of feminist theory, gender studies, and cultural studies/theory. Approaches may be thematic, generic, or chronological.

Ger 3490. Topics in German Literature. (3 cr [max 9 cr]; SP–3104) Intensive exploration of specific authors, literary genres, or other literary topics not covered in period courses.

Ger 3501. Contemporary Germany. (3 cr; SP–3012) Social, political, and cultural developments in Germany from 1945 to the present.

Ger 3510. Topics in German Studies. (3 cr [max 9 cr]; SP–3012) One topic in depth dealing with the culture or civilization of German-speaking countries.

Ger 3511W. German Civilization and Culture: Middle Ages to 1700. (4 cr) Survey of representative cultural-historical events in Germany from early Germanic times to 1700.

Ger 3512W. German Civilization and Culture: 1700 to the Present. (4 cr) Survey of representative cultural-historical events in Germany from 1700 to the present.

Ger 3520. Topics in Austrian and Central European Culture. (3 cr [max 9 cr]; SP–3012) Culture, politics, and economy in Austria and Central Europe. Comparative analysis of cultural/political developments. Topics vary.

Ger 3531. Selected Writings in German Intellectual History. (3 cr; SP–3104) Philosophical writings on culture, history, and art. Authors include Lessing, Schiller, Kant, Hegel, Marx, Nietzsche, and Freud.

Ger 3593. Directed Studies: German-Speaking Writers. (3 cr; SP–3xxx film course or #) Preparation for research abroad during semester before departure. Written and oral reports upon return.

Ger 3601. German Medieval Literature. (3 cr; SP–No knowledge of German required) 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.

Ger 3604W. Introduction to German Cinema. (3 cr) 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]; SP–No knowledge of German required; cr toward major or minor requires reading in German) In-depth study of authors or topics from various periods in German literature.

Ger 3631. Jewish Writers and Rebels in German, Austrian, and American Culture. (3 cr; SP–No German required; cr toward major/minor requires reading in German) 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.

Ger 3634. German Women and Cultural History: Constructing Selves in Narrative Texts. (3 cr; SP–No knowledge of German required; cr toward major or minor requires reading in German) Examination of narrative texts by German women writers against a background of the cultural history of Germany during the 20th century. Focus on personal narrative texts, both written and pictorial, and readings in literary and cultural theory and history. All readings in English.

Ger 3641. German folklore. (3 cr; SP–No knowledge of German required; cr for major or minor by arrangement with instructor) 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.

Ger 3642. The Grimm’s Fairy Tales, Feminism, and Folklore. (3 cr; SP–No knowledge of German required; cr toward major or minor requires reading in German) Exploration of the Grimm’s fairy tales and investigation of how various folktales types and gender stereotypes 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 3701. History of the German Language. (3 cr; SP–1004) Change in grammar and lexicon. 750 A.D. to present.

Ger 3702. Beginning Middle High German. (3 cr; SP–1004) Middle High German grammar. Selected literary texts.

Ger 3703. Introduction to Old High and Low German. (3 cr; SP–3702 or #) Biographies, charms, heroic poetry, and miscellany from the 9th and 10th centuries.

Ger 3704. German Dialects. (3 cr; SP–3004) Contemporary regional dialects recorded on tape and written in the 9th and 10th centuries.

Ger 3705. Characteristics of the Germanic Languages. (3 cr; SP–3703, Ling 3601 or Ling 5601) German and North Sea Germanic; West, North, and East Germanic; Proto-Germanic and Indo-European.

Ger 3993. Directed Studies. (1-4 cr [max 12 cr]; SP–#, A, J) Guided individual reading or study.

Ger 4040. German Play: Oral Interpretation and Performance of German. (3 cr [max 9 cr]) Dramatic reading of German play for pronunciation; preparation and rehearsal for production and performance of German play.

Ger 4621. The German-Americans: Literary and Linguistic Aspects. (3 cr) Study the contribution made by German immigrants to American culture, especially in Minnesota. Language and literature study is supplemented by field trips in Minnesota.

Course Descriptions

Ger 4622. German Cinema Since 1945. (3 cr; SP--3xxx film course or #) German cinema during the first years of postwar occupation and then in each of the two postwar German states, East and West Germany, from 1949--1990, and finally in the united Germany from 1990 on. Includes films of DEFA, "New German Cinema," feminist cinema, German comedies of the 1980s and 1990s, etc.

Ger 5011. Advanced Conversation and Composition. (3 cr; SP--3012) Helps graduate and advanced undergraduate students achieve high proficiency in writing and speaking professional and academic German.

Ger 5016. Advanced Translation: Theory and Practice. (3 cr; SP--3016 or #) Translation theory, related issues in stylistics, philosophy of language; sample translations; student production of translations with methodological commentary.

Ger 5101. Analysis of German. (3 cr; SP--1004, Ling 3001 or Ling 5001 or #) Phonology, morphology, and syntax of standard German.

Ger 5410. Topics in German Literature. (3 cr; max 9 cr; SP--3014 or equiv) 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; SP--3xxx film course or #) A single topic of contemporary German culture explored in depth.

Ger 5610. German Literature in Translation. (3 cr; max 9 cr; SP--No knowledge of German required; cr toward major or minor requires reading in German) Study in depth of authors or topics from various periods in German literature. Requires no knowledge of German.

Ger 5630. Topics in German Cinema. (3 cr; max 9 cr; SP--3xxx film course or #) Topics chosen may focus on specific directors, genres, film production or reception, and/or other formal, theoretical, historical, or political issues.

Ger 5711. History of the German Language I. (3 cr; SP--3012) Historical development of German from the beginnings to 1450.

Ger 5712. History of the German Language II. (3 cr; SP--5711) Historical development of German from 1450 to 2000.

Ger 5721. Introduction to Middle High German. (3 cr) 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; SP--5721) Acquisition of fluency in reading Middle High German normalized as well as non-normalized texts, both poetry and prose.

Ger 5731. Old High German I. (3 cr) Study of the monuments of Old High German. Detailed investigation of Old High German in comparison with the other Germanic languages.

Ger 5732. Old High German II. (3 cr; SP--5731) Study of the monuments of Old High German. Detailed investigation of Old High German in comparison with the other Germanic languages.

Ger 5734. Old Saxon. (3 cr) Study of the poetry of Old Saxon. Detailed investigation of Old Saxon in comparison with the other Old Germanic languages.

Ger 5740. Readings in Philology. (3 cr; max 9 cr) Philological analysis of a chosen text in any medieval Germanic language.

Ger 5771. Early New High German. (3 cr) Reading and analysis of Early New High German texts. Formal description of Early New High German phonology, morphology, syntax.

Ger 5781. Varieties of Modern German. (3 cr; SP--5101) Lexical, syntactic, and phonological variations examined using contemporary methods of dialectology and sociolinguistics.

Ger 5801. German Script Since 1500: Readings. (3 cr) Handwriting and printed book scripts will be read, 1500--2000.

Ger 5993. Directed Studies. (1-4 cr [max 12 cr]; SP--#, A, C) Guided individual reading or study.

German, Scandinavian, and Dutch (GSD)

Department of German, Scandinavian, and Dutch College of Liberal Arts

GSD 3451W. Honors Major Project Seminar. (4 cr; SP--Honors, A-F only) Major project under supervision of faculty member. Oral exam based on project.

GSD 3451W. Major Project Seminar. (4 cr; A-F only) Students prepare major project under supervision of faculty member.

GSD 5103. Teaching of Germanic Languages. (4 cr) Second language acquisition theory, methods, testing, and technology applicable to teaching of modern Germanic languages.

Gerontology (Gero)

Graduate School

Gero 5105. Multidisciplinary Perspectives on Aging. (3 cr) Sociological, psychological aspects of aging; theories of aging; death and bereavement; issues and problems of older adults in America; human services and their delivery systems (health, nutrition, long-term care, education); public policy and legislation; environment and housing; retirement.

Gero 5110. Biology of Aging. (3 cr; A-F only) Biological changes that occur with aging. Methods for studying aging, descriptions of population age theories on how/why we age. Process of aging in each body system, variation between individuals/populations. Clinical implications of biological changes with age. Guest lecturers from different disciplines.

Global Studies (GloS)

Institute of International Studies College of Liberal Arts


GloS 1201. Exploring Global Studies. (1 cr [max 1 cr]; A-F, S-N only) Global studies, study abroad, and experiential learning. International film series, discussions with faculty, exposure to international media resources. Introduction to special language learning opportunities. Tied to Global Studies House residential experience.

GloS 1909W. Topics: Freshman Seminar. (3 cr; SP--Fr or max 36 cr; A-F only) Topics specified in Class Schedule.

GloS 3003. Cultural Anthropology. (3 cr; SP--Anth 3003 or Anth 2003 or #) Marxist/feminist theories of culture. Language and culture/discurso. Psychological anthropology. Culture and transnational processes. May include field research, politics of ethnographic knowledge.

GloS 3101. International Relations: Practice and Theory. (4 cr; SP--3301H; A-F only) Theoretical approaches, contextually grounded case studies, simulations of significant contemporary world problems.

GloS 3101H. Honors International Relations: Practice and Theory. (4 cr; A-F only) Core course for international relations majors. Provides a broad range of theoretical approaches, contextually grounded case studies, and simulations of significant contemporary world problems. Students acquire insights and skills needed to become a professional in the field.

GloS 3102. Research Methods in International Relations. (3 cr) Provides skills for the competitive work place and academic research. Information resources and methods for researching topics in international relations including both traditional print and new electronic forms of information.

GloS 3103. Colonialism and Modernity. (3 cr; SP--[3101, Area 3144] or #) How modern world has been constituted by colonial encounter: Role of colonialism in construction of west. Images of non-western societies. Modernity in colonial/postcolonial societies. Problems/potential of universal categories such as democracy, gender, history, human rights. Globalization at the margins.

GloS 3144. Introduction to Area Studies. (4 cr) Approaches to relationships between local experience, global issues. Gender relations as point of entry into themes such as identity, livelihood, immigration, family. Case studies from three regions of the world.


GloS 3302. Debating “Development”: Contested Visions. (3 cr; SP--5302, [3101, 3144] or A-F only) Introduction to various radical critiques of idea/practice of “development.” Overview of debates over development. Diverse vocabularies (marxist, feminist, poststructuralist, ecological) that drive the debates.

GloS 3401. International Human Rights Law. (3 cr; SP--[3101, 3144] or # A-F only) Issues, procedures, advocacy strategies regarding promotion/protection of international human rights. Students analyze recent case studies of human rights violations in light of evolving laws, enforcement mechanisms.

GloS 3402. Human Rights Internship. (3 cr; SP--[3101, 3144] or # A-F only) Hands-on experience in one of many Twin Cities area organizations engaged in promoting/protecting international human rights. Students work 100 hours in non-governmental organization. Substantive background on human rights laws/procedures, organizational theory/management information about human rights organizations.
GloS 3500H. Honors Course: Supervised Research Paper. (4 cr)
Supervised research paper.

GloS 3522H. Honors Seminar: Making of the Modern World. (3 cr; SP–MacArthur Program or [IntR, honors]; A–F only)
Interactive across ecological frontiers, changing power relations, restructuring of systems of production, creation of new cultures/identities.

GloS 3533. Honors: Change in the Contemporary Global Order. (3 cr; SP–A–F only)
Important issues of global change: population growth, human migration; human relations with physical environment; struggles for popular power, sustainable democratic institutions; relations/conditions of work; cultural representations of social identities. Attention to U.S.-Mexican arena.

GloS 3558. Honors junior Research Seminar. (3 cr; SP–jr, honors, IntR-A–F only)
Theoretical perspectives/methods available to researchers in international studies.

GloS 3620. Other Worlds: Globalization and Culture. (3 cr; SP–[3101, Area 3114] or A–F only)
Interconnectedness of world. Considering not one world, but many. Colonialism, consumption, diasporic conditions, global mass, nationalism, supra-national governance. How globalization is experienced/contested locally/specifically.

GloS 3620. Foreign Language News Coverage of International Events. (1 cr; SP–IntR major; completion of college language requirement in language used for the course)
Compares coverage of current news in selected foreign language newspapers with coverage in a U.S. paper such as The New York Times.

GloS 3900. Topics in International Relations. (3 cr)
Selected issues and topics in international relations. Topics will vary every semester. Topics specified in Class Schedule.

GloS 3910. Topics in East Asian Studies. (3 cr)
Selected topics in history not covered in regular courses, covering more than one geographic area/time period. Taught as staffing/need exist.

GloS 3920. Topics in European Studies. (3 cr)
Topics vary. See Class Schedule.

GloS 3930. Topics in Latin American Studies. (3 cr)
Topics vary. See Class Schedule.

GloS 3940. Topics in Middle Eastern Studies. (3 cr)
Description varies with topic title.

GloS 3950. Topics in Russian Area Studies. (3 cr)
Description varies with topic title.

GloS 3960. Topics in South Asian Studies. (3 cr)
Description varies with topic title.

GloS 3960. Topics in South Asian Studies. (3 cr)
Topics vary. See Class Schedule.

GloS 3961. Culture and Society of India. (3 cr; SP–Anth 2023)

GloS 3981W. Major Project Seminar. (3 cr; A–F only)
Supports senior project requirement by allowing students to formulate their own research questions, select a topic, develop and produce a 25-30 page undergraduate research paper.

Guided individual reading or study.

GloS 4504W. Senior Project. (3 cr; QP–Sr or SP–Sr or #)
Research methods, writing skills, and bibliography related to field of study.

GloS 4601. International Development: Theory and Practice. (4 cr; SP–A–F only)
Interdisciplinary approaches to development. Assumptions, competing paradigm, analysis of policies, projects, problems. Globalization, societal crisis, indigenous alternatives to dominant paradigm. Partially taught in separate sections to deepen understanding of particular topic (e.g., environment, health, education).

GloS 4603. Work, Family, Community, and Development in Cross-Cultural Perspective. (4 cr; SP–A–F only)
Inter-cultural communication concepts/ skills. US cultural/system. Stages of adjustment. Coping strategies for crossing cultural boundaries. Host-country cultural characteristics; emphasizes work, family, community, views of development.

GloS 4900. Senior Seminar in Global Studies. (3 cr; SP–[3101, Area 3144, global studies major] or A–F only)
Globalization, nationalism, colonialism, cultural production, environmental sustainability, globalization of economy, migration, diasporas, global conflict/cooperation, human rights. Students examine theoretical debates and cutting edge scholarship and develop their own research projects. Capstone course.

GloS 4900H. Honors: Senior Seminar in Global Studies. (3 cr; SP–[3101, Area 3144, honors student, Global Studies major] or A–F only)
Globalization, nationalism, colonialism, cultural production, environmental sustainability, globalization of economy, migration, diasporas, global conflict/cooperation, human rights. Students examine theoretical debates and cutting edge scholarship and develop their own research projects. Capstone course.

GloS 4940. Topics in Asian History. (1-4 cr [max 16 cr])
Selected topics in Asian history not covered in regular courses.

GloS 4960. Advanced Topics in South Asian Studies. (3 cr; SP–Jr or Sr or grad or #)
Topics vary. See Class Schedule.

GloS 5103. Colonialism and Modernity. (3 cr; SP–[3101, Area 3144] or A–F only)
How modern world has been constituted by colonial encounter. Role of colonialism in construction of the west. Images of non-western societies. Modernity in colonial/postcolonial societies. Problems/potential of universal categories such as democracy, gender, history, human rights, globalization at the margins.

GloS 5114. International Perspectives—U.S.-Mexico Border Cultures. (3 cr; SP–Grad student)
The relations of Mexico and the United States from an international perspective with a central focus on the cultural interchange in the border lands between the two countries. Uses both literary and historical materials.

GloS 5301. Environment and Empire. (3 cr; SP–[3101, Area 3144] or A–F only)
Key issues in environmental history. Emphasizes global/colonial processes that have made modern environment. Global spread of diseases, modern remaking of the world’s flora/fauna, idea of nature. New technologies and the environment. Conservationist ideology.

GloS 5360. Other Worlds: Globality and Culture. (3 cr; SP–[3101, Area 3144, grad student] or A–F only)
Interconnectedness of world. Considering not one world, but many. Colonialism, consumption, diasporic conditions, global media, nationalism, supra-national governance. How globalization is experienced/contested locally/specifically.

GloS 5900. Topics in International Relations. (3 cr)
Proseminar. Selected issues in international relations. Topics vary every semester.

GloS 5910. Topics in East Asian Studies. (3 cr)
Description varies with topic title.

GloS 5920. Topics in European Studies. (3 cr)
Description varies with topic title.

GloS 5930. Topics in Latin American Studies. (3 cr)
Description varies with topic title.

GloS 5940. Topics in Middle Eastern Studies. (3 cr)
Description varies with topic title.

GloS 5950. Topics in Russian Area Studies. (3 cr)
Description varies with topic title.

GloS 5960. Topics in South Asian Studies. (3 cr)
Description varies with topic title.

GloS 5993. Directed Studies. (1-4 cr [max 12 cr]; QP–#; A–F, SP–A, A–F, A–F only)
Guided individual reading or study. Open to qualified students for one or more semesters.

GloS 5994. Directed Research. (1-4 cr [max 12 cr]; QP–#; A–F, SP–A, A–F, A–F only)
Qualified students work on a tutorial basis.

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**Greek (Grk)**

Department of Classical and Near Eastern Studies
College of Liberal Arts

Grk 1001. Beginning Classical Greek I. (4 cr)
Introduction to classical Greek.

Grk 1002. Beginning Classical Greek II. (4 cr; SP–1001 or equiv)
Continuing work on Greek grammar and syntax; readings from classical Greek authors including Herodotus and Aristophanes.

Grk 1111H. Honors Course: Beginning Classical Greek. (3 cr; SP–4 1001, 1112, [honors or high ability as indicated by high school transcript])
Intensive Classical Greek covering material normally taught over two semesters.

Grk 1112H. Honors Course: Classical Greek, Recitation. (3 cr; SP–1001; 1111, [honors or high ability as indicated by high school transcript])
Drills, composition exercises.

Grk 3111. Intensive Classical Greek. (3 cr; SP–1001-1002, 1111, 3112; previous exper in another foreign language desirable)
Intensive introduction to classical Greek covering two semesters of material in one semester. Undergraduates in this course must also register for 3112 when taking this class.

Grk 3112. Intensive Classical Greek, Recitation. (3 cr; SP–1001-1002, 1111, [honors or high ability as indicated by high school transcript])
Drills and composition exercises to help students learn classical Greek. Students must also register for 3111 when taking this course.

Grk 3113. Attic Authors. (4 cr; SP–1002 or 1111 or 3111 or 3 yrs high school Greek or #)
Selections from classical Attic authors.

Grk 3114. Ionic Authors. (4 cr; SP–3113 or A)
Students progress from intermediate to advanced Greek reading while exploring the world of Herodotus and Homer.

Grk 3120. Greek New Testament. (3 cr [max 6 cr]; SP–3113 or #)

Grk 3310. Advanced Undergraduate Greek: Oratory. (3 cr [max 9 cr]; SP–3114 or 3 yrs Greek or #)
One or more appropriate authors studied during each course offering.

Grk 3320. Advanced Undergraduate Greek: Tragedy. (3 cr [max 9 cr]; SP–3114 or 3 yrs Greek or #)
Advanced reading in Greek tragedy.

Grk 3330. Advanced Undergraduate Greek: Comedy. (3 cr [max 9 cr]; SP–3114 or 3 yrs Greek or #)
Advanced readings in Greek comedy.

Grk 3340. Advanced Undergraduate Greek: History. (3 cr [max 9 cr]; SP–3114 or 3 yrs Greek or #)
Advanced readings from the Greek historians; traditions of Greek historiography.

Grk 3350. Advanced Undergraduate Greek: Philosophy. (3 cr [max 9 cr]; SP–3114 or 3 yrs Greek or #)
Read one or more works of Plato or Aristotle in the original Greek and find out what they really mean. Texts vary with each offering.
**Course Descriptions**

Grk 3360. Advanced Undergraduate Greek: Religious Texts. (3 cr; max 9 cr) SP–3114 or 3 years HS Greek or A

Reading and discussion of religious texts from Greek antiquity. Selections vary with each course offering.

Grk 3370. Advanced Undergraduate Greek: Epic. (3 cr; max 9 cr) SP–3114 or 3 years HS Greek or A

Reading of classical Greek epic on an advanced level.

Grk 3380. Advanced Undergraduate Greek: Lyric. (3 cr; max 9 cr) SP–3114 or 3 years HS Greek or A

Selections from Greek lyric poets.

Grk 3390. Advanced Undergraduate Greek: Romance. (3 cr; max 9 cr) SP–3114 or 3 years HS Greek or A

Selections from the Hellenistic Romances.

Grk 3440. Advanced Undergraduate Greek: Later Greek Authors. (3 cr; max 9 cr) SP–3114 or 3 years HS Greek or A

Selected topics in later Greek literature, especially Byzantine prose.

Grk 3450. Advanced Undergraduate Greek: Classical Authors. (3 cr; max 9 cr) SP–3114 or 3 years HS Greek or A

Selected topics in classical Greek literature; topics specified in Class Schedule.

Grk 3951. Major Project. (4 cr; SP–Greek-Latin or Greek major, three 3000 Greek courses) 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 during the semester.

Grk 3960H. Honors Course: Advanced Undergraduate Greek Reading. (3 cr; max 12 cr) SP–Regis in honors program or high ability as indicated by transcript) Student attends Greek 33xx, 3440, 3450 and does additional work for honors credit.

Grk 3993. Directed Studies. (1-4 cr)

Grk 5012. Prose Composition. (3 cr)

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.

Grk 5013. Advanced Composition. (3 cr; SP–5012 or #)

Detailed study of English-to-Greek verse composition and/or the writing styles of individual Greek authors.

Grk 5032. Text Criticism. (3 cr; SP–Greek 3114) Theory and practice. Elements of palaeography and manuscript study. Basic tools for analyzing a textual apparatus with some independence; constructing a critical edition of a literary text.

Grk 5121. Biblical and Patristic Greek. (3 cr; SP–3114 or 3120) Septuagint, Philo, Josephus, New Testament, Apostolic Fathers, and other patristic literature to 5th century C.E. Reading and discussion of selected texts in the major genres.

Grk 5130. Greek Literature: Oratory. (3 cr; max 9 cr, One or more appropriate authors studied in a given course.

Grk 5230. Greek Literature: Tragedy. (3 cr; max 9 cr) Reading of Greek tragedy on advanced level.

Grk 5330. Greek Literature: Comedy. (3 cr; max 9 cr) Advanced readings in Greek comedy.

Grk 5340. Greek Literature: History. (3 cr; max 9 cr) Advanced readings from the Greek historians; traditions of Greek historiography.

Grk 5350. Greek Literature: Philosophy. (3 cr) Read one or more works of Plato or Aristotle in the original Greek and find out what they really mean. Selections vary with each offering.

Grk 5360. Literature: Religious Texts. (3 cr; max 9 cr) Reading and discussion of religious texts from Greek antiquity. Hymns, cultic verse, aretalogy, sacred tales, oracle texts.

Grk 5370. Greek Literature: Epic. (3 cr; max 9 cr) Reading of classical Greek epic on an advanced level.

Grk 5380. Greek Literature: Lyric. (3 cr; max 9 cr) Selections from the Greek lyric poets.

Grk 5390. Greek Literature: Romance. (3 cr; max 9 cr) Selections from the Hellenistic Romances of, e.g., Chariton, Longus.

Grk 5440. Greek Literature: Later Authors. (3 cr; max 9 cr) Selected topics in later Greek literature, especially Byzantine prose.

Grk 5450. Greek Literature: Classical Authors. (3 cr; max 9 cr) Selected topics in classical Greek literature; topics specified in Class Schedule.

Grk 5621. Greek Palaeography. (3 cr) Analysis of various hands used in Greek manuscripts with attention to date and provenance; history of the transmission of Greek literature.

Grk 5715. Introduction to the Historical-Comparative Grammar of Greek and Latin. (3 cr; SP–# or 2 yrs college Latin)

Historical and comparative grammar of Greek and Latin from their Proto-Indo-European origins to the classical norms.

Grk 5716. History of Greek. (3 cr; SP–Grk/Lat 5715 or equiv) 2 yrs college Latin)

Reading and formal analysis of documents illustrating the evolution of the Greek language from Mycenaean to modern times.

Grk 5993. Directed Studies. (1-4 cr; max 18 cr, SP–# A, Q)

Guided individual reading or study.

Grk 5994. Directed Research. (1-12 cr; max 18 cr, SP–# A, Q)

Supervised original research on topic chosen by student.

Grk 5996. Directed Instruction. (1-12 cr; max 20 cr; SP–# A, Q)

Supervised teaching internship.

**Hebrew (Hebr)**

**Department of Classical and Near Eastern Studies**

**College of Liberal Arts**

**Hebr 1001. Beginning Hebrew I. (4 cr)**

For beginners whose goal is biblical or post-biblical Jewish studies, or modern Israeli Hebrew. Leads to speaking, listening comprehension, and reading/writing Hebrew. Emphasizes communication proficiency. Cultural materials are incorporated.

**Hebr 1002. Beginning Hebrew II. (4 cr; SP–1001 or #)**

Continuation of 1001. For students whose goal in biblical or post-biblical Jewish studies, or Modern Israeli Hebrew. Leads to speaking, listening comprehension, reading, and writing Hebrew with emphasis on communication proficiency. Cultural materials incorporated.

**Hebr 1012. High Performance Hebrew I. (4 cr; SP–Previous exposure to Hebrew or ability to work at an intensive pace)**

Similar to Hebrew I. Intended for those who may have had previous exposure to the language but need a full presentation of course materials and for honors students and highly motivated beginners.

**Hebr 1013. High Performance Hebrew II. (4 cr; SP–1012 or #)**

Similar to Hebrew II. Intended for those who may have had previous exposure to the language but need a full presentation of course materials and for honors students and highly motivated beginners.


Basic grammar/syntax preparatory to reading simple narrative texts in Bible. Multiple approaches to problems/issues in biblical scholarship.

**Hebr 1105. Basics of Biblical Hebrew II. (4 cr; SP–Hebr 1104)**

Progression to more sophisticated reading of narrative, prophetic, and legal texts. Presentation and discussion of multiple approaches to problems and issues in biblical scholarship.

**Hebr 3001. Intermediate Hebrew I. (4 cr; SP–1002 or qualified for or #)**

Prepares students for CLA language requirement. Strengthens and extends proficiency in speaking, reading, writing, and comprehension of modern Hebrew. Read and discuss prose, poetry, news, and film. Important features of biblical and classical Hebrew introduced. Taught primarily in Hebrew.

**Hebr 3012. Intermediate Hebrew II. (4 cr; SP–3011 or qualified for or #)**

Extensive reading of simplified modern Hebrew prose selections. Discuss poetry, newspaper, film, and TV in Hebrew. Important features of biblical and classical Hebrew introduced. Taught primarily in Hebrew.

**Hebr 3015. Advanced Modern Hebrew I. (3 cr; SP–2012)**

Advanced studies in a variety of genres and media including fiction, poetry, drama, film, and journal. Emphasis on expanded oral and written self-expression. Materials from several periods are used to prepare for future specialized study. Taught in Hebrew.

**Hebr 3116. Advanced Modern Hebrew II. (3 cr; SP–3015 or qualified for or #)**

A continuation of 3015. Emphasis on expanded oral and written self-expression. Samples a variety of Hebrew periods to prepare for specialized study. Studies utilize a variety of genres and media including fiction, poetry, drama, film, and journal. Taught in Hebrew.

**Hebr 3111. Rabbinic Texts I. (3 cr; SP–3012 or #)**


**Hebr 3112. Rabbinic Texts II. (3 cr; SP–3111 or #)**

Selections from Mishnah, Gemara, Midrash and codes.

**Hebr 3122. Medieval Hebrew Literature I. (3 cr; SP–3012 or #)**

Readings in medieval Hebrew philosophical texts including Sa’adha Gaon, Judah Halevi, Maimonides, and others.

**Hebr 3123. Medieval Hebrew Literature II. (3 cr; SP–3012 or #)**

Medieval Hebrew religious and secular poetry. Representative poets from the Middle Ages: Yanaï, Kalir, Iba Gabirol, Halevi, Kalir, Ibn Gabirol, Halevi, others.

**Hebr 3121. Talmudic Texts. (3 cr; SP–3012 or 3016 or #)**

Study of a tractate of Talmud Babli and Yerushalmi, Mishnah, Tossefta. Literary critical methods and attention to Talmudic Aramaic. Redactional and historical problems.

**Hebr 3200. Topics in Biblical Studies: A Book of the Bible. (3 cr; max 9 cr; SP–3012 or qualified for or #; ability to speak Hebrew not required)**

Scientific study of a book of the Bible. Both modern scholarly methods and research, and medieval exegesis are utilized. Analysis of selected text.

**Hebr 3201. Readings in Biblical Hebrew I. (3 cr; SP–1002, 1105 or #; ability to speak Hebrew not required)**

Study text of the Hebrew Bible and learn to use basic research tools and commentaries. Close reading of narrative biblical texts. Develop reading fluency and familiarity with methods of research in biblical studies.

**Hebr 3202. Readings in Biblical Hebrew II. (3 cr; SP–1002, 1105, 3201 or #; ability to speak Hebrew not required)**

Study text of the Hebrew Bible and learn to use basic research tools and commentaries. Close reading of narrative biblical texts. Develop reading fluency and familiarity with methods of research in biblical studies.

**Hebr 3301. Modern Hebrew Prose (Survey of Hebrew Essays and Journals). (3 cr; SP–2016 or #)**

Works from 19th- and 20th-century Hebrew essayists. Jewish nationalism, literary criticism, social and political issues, religion, and philosophy. Readings from encyclopedia articles and journals.
Course Descriptions

Hebr 3302. Modern Literary Prose and Poetry. (3 cr; SP–3016 or #) Close reading of contemporary prose, prose, fiction, and plays. Methods of literary analysis. Established writers and new writers, particularly women. Themes include: human relations, disintegration of traditional society, militarism, alienation, genocide, Jews and Arabs, Entirely in Hebrew.

Hebr 3951. Major Project. (4 cr; SP–Hebr major; three 3xxx Hebrew courses or #) Research project using primary and secondary sources. Students select project in consultation with a faculty member who directs the research and writing.

Hebr 3980. Directed Instruction. (1-4 cr; SP–#) For students interested in careers in Hebrew education. Observe and discuss classes. Gradually increased participation in preparing and presenting instructional materials to a beginning Hebrew class. Evaluation of materials, teaching techniques. Seminars with instructor and staff on language teaching issues.

Hebr 3990. Topics in Hebrew Studies. (1-4 cr [max 12 cr]; SP–#) Historical, linguistic, literary, religious, or humanistic study of Hebrew society and culture. Approach and method of study varies with topic.

Hindi 5992. Directed Readings. (1-4 cr [max 12 cr]; SP–3012 or #) Guided individual reading or study.

Hindi (Hndi)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

Hndi 1001. Introduction to Conversational Hindi. (3 cr; A-F only) Advanced grammatical structures, oral forms, new vocabulary reinforced from lessons around everyday life situations. Oral/written drills, reading for comprehension, audio-visual work.


Hndi 3113. Intermediate Hindi. (4 cr; SP–1102 or #) Development of reading, writing, speaking, and listening skills. Grammar review, some basic compositions and oral presentations.

Hndi 3132. Intermediate Hindi. (4 cr; SP–3131 or #) Development of reading, writing, and listening skills. Grammar review, some basic compositions and oral presentations.

Hndi 4161. Advanced Hindi. (4 cr; SP–3132 or #) Continued emphasis on the development of communication skills, i.e., the ability to comprehend both written and spoken texts, and to speak, read, and write in Hindi beyond the intermediate level.

Hndi 4162. Advanced Hindi. (4 cr; SP–4161 or #) Continued emphasis on the development of communication skills, i.e., the ability to comprehend both written and spoken texts, and to speak, read, and write in Hindi, beyond the intermediate level.

Hndi 5710. Topics in Hindi Language, Literature, and Culture. (4-5 cr) Topics in Hindi literature or the linguistic structure of Hindi.

Hndi 5990. Directed Research. (3-5 cr; SP–A,F,Q) Hndi 5993. Directed Readings. (3-5 cr; SP–A,F,Q) Guided individual reading or study of modern Hindi texts.

History (Hist)

Department of History

College of Liberal Arts


Hist 1012V. Honors World History. (4 cr; SP–) World history from 1450 to 1920s. Comparisons of and connections among various cultures. Emphasizes analyzing primary documents to show how historical knowledge is produced. Case studies. Web-enhanced.

Hist 1012W. World History: The Age of Global Contact. (4 cr; SP–1018) Case study approach to world history from 1450 to 1920s. Comparisons of and connections among various cultures. Emphasis on analyzing primary documents to show how historical knowledge is produced. Course is web-enhanced.


Hist 1018. World History: The Age of Global Contact. (3 cr; SP–1012) Case study approach to world history from 1450 to 1920s. Comparisons of and connections among various cultures. Emphasis on analyzing primary documents to show how historical knowledge is produced. Course is web-enhanced.

Hist 1026. Western Civilization from its Origins to ca 1500. (3 cr; SP–1031) Western civilization from its origins in ancient Middle East to Europe in 1500. Law, religion, governments, history of ideas, social organization.

Hist 1027. Western Civilization from 1500 to Present. (3 cr; SP–1032) Role of European civilization in world history from early 16th century to present. Broad chronological periods/themes.

Hist 1031V. Honors: Survey of Western Civilization From Its Origins to ca 1500. (4 cr) The development of western civilization from its origins in the ancient Middle East to Europe in 1500. Law, religion, government, history of ideas, social organization.

Hist 1031W. Western Civilization from its Origins to ca 1500. (4 cr; SP–1026) Western civilization from its origins in ancient Middle East to Europe in 1500. Law, religions, governments, history of ideas, social organization.

Hist 1032V. Honors: Western Civilization From 1500 to Present. (4 cr) Role of European civilization in world history from early 16th century to present. Broad chronological periods/themes.

Hist 1032W. Western Civilization from 1500 to Present. (4 cr) Role of European civilization in world history from early 16th century to present. Broad chronological periods/themes.

Hist 1301V. Honors: U.S. History to 1880. (4 cr) America to 1880.

Hist 1301W. U.S. History to 1880. (4 cr) America to 1880.

Hist 1302V. Honors: U.S. History to 1880. (4 cr) America 1880 to present.

Hist 1302W. U.S. History to 1880. (4 cr; SP–1300) Modern America from 1880 to the present.


Hist 1308. U.S. History: 1880 to Present. (3 cr; SP–1302) Modern America from 1880 to the present.

Hist 1462. Introduction to East Asia in Modern Times 1600-2000. (4 cr) Formation and decline of early modern Asian empires; Western imperialism and Asian nationalism; social revolution, economic modernization, and cultural change in China, Japan, Korea, and Vietnam between 1600-2000.

Hist 1908W. Freshman Seminar. (3 cr; SP–Fr with no more than 24 cr; A-F only) Topics specified in Class Schedule.


Hist 3051. Ancient Civilization: Near East and Egypt. (3 cr) A broad survey of ancient Near Eastern and Egyptian history and culture from the prehistoric to the rise of Persia around 530 B.C.

Hist 3052. Ancient Civilization: Greece. (3 cr) 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. (3 cr) 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 3101. Introduction to Medieval History. (3 cr) Europe from the decline of Rome to the early Renaissance; politics, institutions, society, economy, and culture of the Middle Ages.

Hist 3151W. British History to the 17th Century. (4 cr) 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 3152W. British History from the 17th Century. (4 cr) Civil War, Revolution and constitutional settlement; industrialization and growth of democracy; rise and decline of British Empire.
Course Descriptions


Hist 3244. History of Eastern Europe. (3 cr) Historical evolution 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 3251. Europe and the American Challenge in the 20th Century. (3 cr; A-F only) European response to social, political, cultural influence of the United States in Europe in 20th century. Political, social, diplomatic memoirs, literature, films, film criticism.

Hist 3281. European Intellectual History: the 18th and 19th Centuries. (3 cr) The first of a two-semester course dealing with logical, philosophical, and methodological issues in the historical, social, and natural sciences from the late 18th to the mid-19th century. Readings are from original sources.

Hist 3282. European Intellectual History: The Late 19th and 20th Centuries. (3 cr) Second semester of readings in fundamental texts dealing with issues in logic, philosophy, and the methodologies of the historical, social, and natural sciences from the late 19th century to the present. Readings are from original sources.

Hist 3347. Women in Early and Victorian America: 1600-1890. (3 cr) The varied experiences of American women 1600-1900. Topics include women’s involvement in the disestablishment of the Anglican church, westward expansion, slavery, industrialization, reform, revolution, and transformations in family life and sexuality.

Hist 3348W. Women in Modern America. (3-4 cr) 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 3401W. Early Latin America to 1825. (4 cr; A-F only) Native American and colonial periods to 1825, with emphasis on social, cultural, and economic aspects.

Hist 3402W. Modern Latin America 1825 to Present. (4 cr) National and contemporary period 1825 to present, with emphasis on social, cultural, political, and economic changes.

Hist 3421. The World and the West: 1400-1900. (3 cr; SP) One-term survey of Western or civilization recommended; A-F only
Survey of the political, economic, religious, and cultural interaction between the peoples of Europe and the peoples of Africa, the Americas, and Asia, with reference to perceptions of alien cultures by both sides.

Hist 3422. World History in the 20th Century. (4 cr; A-F only) Analyzes the major events in 20th-century global history in comparative or cross-cultural context. The decline of Western imperialism, the rise of total war and totalitarianism, nationalism and nation-building are among the key topics.

Hist 3424. Women and Gender in Latin American History. (3 cr) 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) Mexican history from the present: struggles for land, liberty, and equality; ethnicity, gender, and class; economic growth, nationalism, and globalization; urbanization, immigration, demographic transition. Early industrialization; socialism and collectivization after 1949; industrialization of Taiwan; PRC’s entry into the world trading system.


Hist 3473. Family, School, and Work in Modern Japanese History. (3 cr; SP-F; §5473, §EAS 3473) Impact of economic, social, and cultural change on males and females in the family, the education system, and the employment system from the 17th through the 20th centuries.

Hist 3474. The Rise of Modern Japan: 1850s to 1900s. (3 cr; A-F only) The Meiji Restoration from Commodore Perry to the eve of World War I; origins of constitutional monarchy, industrial economy, Western influences, and modern cultural change.


Hist 3481. Ancient and Medieval India. (3 cr; A-F only) The history of India; origins of civilization along the Indus River, Indo-European intrusion, rise of an Indo-Gangetic civilization, response of Buddha to violence, Mauryan empire, classical civilization of India, rise of medieval Hinduism.

Hist 3485. History of Southeast Asia. (3 cr; A-F only) Origins of civilization, rise of empires such as Angkor, diffusion of Buddhism, Hinduism, Islam, and Christianity, West European intrusion through the imperial era, rise of nationalism, and the establishment of nation-states.

Hist 3488. Genesis of Modern India. (3 cr; A-F only) Spans the rise of the Mogul empires in the 1600s to the demise of the British Empire in 1947, including present day India, Pakistan, and Bangladesh.

Hist 3498. 20th Century India. (3 cr; A-F only) India under British hegemony in 1914 through Mahatma Gandhi and his movement; World War II; the British departure; creation of India and Pakistan; Nehru; Indira and Rajiv Gandhi.

Hist 3491. Islamic Civilization. (3 cr) Islamic legacy in the classical age (800-1400) in the sciences - natural and medical - mathematics, philosophy, and literature, and their transmission to Europe.

Hist 3505. Survey of the Middle East. (3 cr) Peoples, lands, and cultures of the Middle East. Historical survey from earliest civilizations to the present.

Hist 3541. Islam in the Catholic Age. (3 cr) The rise of Islam in its Andalusian setting. Roles of the prophet, the orthodox and Umayyad caliphs. Development of Islamic state and empire, organizations, institutions, and states of Muslims and non-Muslims.

Hist 3542. Medieval Islam. (3 cr) Islamic dynasties, Umayyads of Spain, Shiites, assassins, Abbasid Caliphate’s disintegration and rise of Seljuk Turks. Sunnism re-emerges. IlKhanids.

Hist 3544. Arab World 1920 Until the Present. (3 cr) Arab world since independence; the struggle for liberation, political stability, development and unification; political structure and conflicts; impact of Arab-Israeli conflict.

Hist 3547. The Ottoman Empire. (3 cr) Funding of Ottoman society and state to empires, 1300 to end of era in 1920. Lands, institutions, peoples, legacy, impact on Europe

Hist 3608W. History of the Catholic Church in the Middle Ages. (3 cr; SP–Intro course in European history taught before 1500 recommended) Religious beliefs of Latin Christianity as officially and as received by ordinary folk; organization of the church and its implantation in lay society; relations between Latin Christendom and its neighbors, Orthodoxy and Islam.

Hist 3609. Military History of Medieval Western Europe. (3 cr) 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. (3 cr) Evolution of Western European cities from the late Roman town to the early Renaissance city-state.


Hist 3615W. Women in European History: 1500 to the Present. (3 cr) Women’s history and gender relations in modern European history. Methods and primary sources for women’s history and the implications of inclusion of women in historical study.

Hist 3616W. France in the Middle Ages. (3 cr) Politics, society and culture in medieval France from the end of the Carolingians to the end of the Hundred Years War.

Hist 3618. The Dark Ages Illumined: Medieval Europe to 1050. (3 cr) Origins of medieval Europe. Germanic and Viking invasions, feudalism, manorialism, Islam, the papacy, monasteries, and merchant developments.

Hist 3619. Chivalry, Crisis, and Revival: Medieval History 1050-1500. (3-4 cr) Chivalry and courtly love, crusades, revival of towns and trade, monasteries, and religious developments. Black Death, famine, and wars.

Hist 3621W. Renaissance Italy: 1200-1550. (3 cr; SP–Intro course in European history before 1500 recommended) The political and cultural history of the city-states of northern and central Italy, 1200-1550, with an emphasis on Florence and Venice; readings include Dante and Machiavelli.

Hist 3623W. Germany in the Age of Reform. (3 cr; SP–General course in European history before 1500 recommended) History of religious reform movements—Lutheran, Calvinist, and Catholic—in the context of German politics, society, and culture; emphasis on primary source readings (written during the period).

Hist 3626. France From the Late 16th Century Through Napoleon: 1549-1815. (3 cr) The evolution of French government, economy, and society in a broad context: monarchial power and its disintegration; Louis XIV at the apex of the Old Regime; the Enlightenment; the French Revolution; and the rise and fall of Napoleon Bonaparte.

Hist 3632. History of Germany; Reformations to Unification: 1500-1871. (3-4 cr) 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 3633. 20th-Century Germany: The Unmastered Past. (3-4 cr) Unifying the nation; industrial development and political instability; bourgeois culture; growth of socialism; World War I and Revolution; Weimar Era; Depression; Nazi seizure of power; the Hitler state; World War II and the Holocaust; Cold War and two Germanies; reunification.

Hist 3634. The Emergence of Ethnic Conflict: Eastern Europe and Byzantium to Circa 1500. (3 cr) Byzantine and Eastern European history from the 6th century to ca. 1500. Major topics include Byzantium, the medieval Balkans, the rise of the Ottoman empire in Europe, and the West Slavic-Hungarian lands till the Renaissance.

Hist 3636. Conquest, Colonization, and Centralization; The History of Europe Russia Circa 700 to Circa 1700. (3 cr) Major topics include the Khazar, Rus’, and Bulgar states, Mongol conquest and role, Muscovite Russia, Ukraine in the 16th-17th centuries, and the Crimean Khanate.

Hist 3637. Modern Russia: From Peter the Great to the Present. (3 cr) 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 3641. Anglo-Saxon England: From King Arthur to William the Conqueror. (3 cr) History of medieval England from the end of Roman rule to the Norman Conquest. All aspects of society examined to provide a broad picture of the creation of Anglo-Saxon England and the Celtic Frontiers.

Hist 3642. Knights, Peasants, and Bandits in Medieval England. (3 cr) Social history of medieval England from 1066 to 1500. Peasants, nobility, and bourgeoisie, including their economic institutions, living conditions and entertainments. Legal and illegal ways of coping with economic and social change resulting from plague and wars.

Hist 3651. England Under the Tudors: 1485-1603. (3-4 cr) Henry VIII and the English Reformation. The early Tudor period, 1485-1547; the reign of Henry VIII and his break with the papacy.

Hist 3652. England Under the Stuarts: 1603-1689. (3 cr) History of England from the accession of James I (1603) to the Glorious Revolution (1689), including political, social, religious, military, and intellectual history.

Hist 3671. Modern Britain: 1783-1867. (3 cr) Britain from the end of the American Revolution to the mid-Victorian age; industrialization and reform.

Hist 3672. Modern Britain Since 1867. (3 cr) Britain from the mid-Victorian age to the near-present; the growth of democracy, the height and depth of world power.

Hist 3681. Irish History. (3 cr) History of Ireland, primarily modern, with emphasis on politics and Anglo-Irish relations.

Hist 3703W. European Cities: 1300-1800. (3 cr; SP–Background in European civilization of late Middle Ages) The historical experience of selected cities in early modern Europe set within the context of ideas about urban formation and development. Key cities are Venice, Florence, Antwerp, Madrid, Seville, Amsterdam, Paris, and London.

Hist 3704W. Daily Life in Europe: 1300-1800. (3 cr) 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 3705. From Printing Press to Internet: Media, Communications, and History. (3 cr; A-F only) Print, public sphere in 17th, early 18th century. Political conflicts over freedom of press in 18th, 19th century. Emergence of advertising, public relations industries in 20th century. Significance of broadcast, computer network technologies for democratic process, political systems.

Hist 3707. Social History of Modern Europe. (3 cr) Transformation from traditional agrarian to modern society, 18th to 20th centuries. Social change; history of the family, marriage and sexuality; the roots of nationalism and racism.

Hist 3712. Economic History of Modern Europe. (3 cr) Long-term rise/transformation of European economy. Emergence of capitalism and spread of economic growth up to WWI. Political economy of growth, instability, and structural change in 20th century.

Hist 3714W. Medieval Spain. (3 cr) Development of the medieval kingdoms of Spain from Roman times to ca. 1500. Major social, economic, and cultural developments. Christians, Jewish, and Muslim interaction. Role of Spain in the beginning of European expansion.

Hist 3715. Modern Spain: 1500 to the Present. (3 cr) Ferdinand and Isabella, the Habsburg and Bourbon dynasties, the 20th-century Civil War and Franco regime, and into the present. Readings, lectures, films, slides, and music will provide a comprehensive view of a vibrant people and their modern history.

Hist 3721. 20th-Century Europe From the Turn of the Century to the End of World War II: 1900-1945. (3 cr) The social, political, and cultural changes and conflicts in Europe from the late 19th century to the end of World War II. The background to WWII, its impact, revolution, the failure of interwar stability, fascism, WWII and its consequences.

Hist 3722. 20th-Century Europe From the End of World War II to the End of the Cold War: 1945-1991. (3 cr) The social, economic, political, and cultural impacts of WWII upon Europe; the division of Europe, communist regimes in Eastern Europe, cooperation in Western Europe, impacts of modernization and the end of the Cold War in 1991.

Hist 3729. Nazi Germany and Hitler's Europe. (3 cr; A-F only) Comprehensive exploration of Third Reich. Students will examine the Nazi regime’s quest to power, transformation of 1930s, imposition of racial politics against Jews/others, nature of total war. Students read historical accounts, memoirs, state documents, view films.


Hist 3747W. Habsburg Central Europe: 1740-1918. (3 cr) Evolution of Habsburg rule in Central Europe from reforms of Maria Theresa to imperial collapse in 1918. Economic/social transformation, Revolutions of 1848. Political modernization, Rise of nationalism/anti-Semitism. Fin-de-siècle culture. WWI.


Hist 3767. Eastern Orthodoxy: History and Culture. (3 cr) 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 3775. History of the European Jews from the Middle Ages to the Present. (3 cr)
Social, economic, and cultural history of the Jewish people in Europe and their interaction with other peoples; history and causes of anti-Semitism; Zionism and assimilation; Chassidism and socialism.

Hist 3797. History of Population. (3 cr)
History of births, deaths, migration, population size, and demographic processes. 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 changes.

Hist 3800. Topics in Early American History. (3 cr)
For advanced undergraduate majors and non-majors. Focus on intensive exploration of particular topics in early American history such as economic history, demographic regimes, social history, intellectual history, foreign policy, religion, and witchcraft in colonial America.

Hist 3801. The People of Early America: 16th to 18th Centuries. (3 cr)
Multicultural approach to early American history focusing on the interactions of Africans, Europeans, and American Indians who came together to create a new world in North America during the 16th, 17th and 18th centuries.

Hist 3809. The Revolution, the Constitution, and the Beginnings of American Politics. (3 cr)
The culture and structure of late colonial politics; regionalism and connections between society and politics; the imperial crisis and independence; military history of the Revolution; origins of national politics and the construction of the Constitution.

Hist 3812. The Civil War and Reconstruction. (3 cr)
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. (3 cr)
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. United States in the 20th Century Since 1945. (3 cr)
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 only)
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: Colonial Era to Civil War. (3 cr; A-F only)

Hist 3837. Minnesota History. (3 cr)
Topics in political/social history of Minnesota and its region in nineteenth/twentieth centuries.

Hist 3841. American Business History. (3 cr)

Hist 3844. American Economic History to 1870. (3 cr)
Economic development, regional specialization and early industrialization. Slavery and social development. The role of railroads and government policies. Economic impact of the Civil War.

Hist 3845. American Economic History: 1870 to the Present. (3 cr)

Hist 3851. Labor in the 19th-Century United States. (3 cr)
The development of U.S. labor in and after the Age of Industry. Industrial unionism and radicalism's challenge to the AFL; organized labor's uneasy integration into American society. Management theories and workers actions. Race, gender, and the changing working class.

Hist 3852. U.S. Labor in the 20th Century. (3 cr)
The development of a working class from the preindustrial to an industrial age. Responses of American workers through labor organization, slave resistance, and political reform. The Knights of Labor, the formation of the AFL, and the challenges of Marxism.

Hist 3861. European American From Immigrants to Ethnicity. (1790-1890). (3 cr; A-F only)
Consequences which contribute to the mass exodus from northern/western Europe during this century as well as the attraction of the United States. Major theme will be how immigrants shaped and in turn were shaped by America.

Hist 3862. European Americans: 1890-1990. (3 cr; A-F only)
From the 1890s, immigrants came predominantly from southern/eastern Europe. A central theme is the role of immigrants in the transformation of America from a rural agricultural to an urban industrial society.

Hist 3864. African American History: Slavery to Reconstruction. (3 cr)
Importance of dynamics of class, gender, region, and political ideology. Changing nature of race/ethnicity.

Hist 3865. African American History: 1890 to Present. (3 cr; A-F only)
Integral migrations, industrialization, unionization, Great Depression, world wars, large-scale movements for social/political change.

Hist 3870. Topics in American Indian History. (3 cr)
Designed for advanced undergraduates. Topics may include social history, oral history, history of particular regions, politics, and policy.

Hist 3871. American Indian History: Pre-Contact to 1830. (4 cr)
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. (4 cr)
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 U.S. History. (3 cr; SP--)
The United States through its cultural diversity. How Native Americans, African Americans, European Americans, Asian Americans, Hispanic Americans interacted, defined what it meant to be an American in 19th/20th centuries.

Hist 3877. Asian American History, 1850-Present. (3 cr)
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 3878. American West, 1848-Present. (3 cr)

Hist 3881. History of American Foreign Relations to 1914. (3 cr)
American involvement in world affairs from 1760-1914 including political, economic, social and, cultural relations by individuals, groups, governmental, and non-governmental agencies focusing on nation building, creation of continental and commercial empires, hemispheric hegemony, cultural expansion, and wartime diplomacy.

Hist 3882. History of American Foreign Relations: 1914 to Present. (3 cr)
American involvement in world affairs 1914 to present. Political, economic, social, and cultural activities by individuals, groups, and governmental and non-governmental agencies, participation in international organizations, commercial and cultural imperialism, and war and Cold War diplomacy.

Hist 3891. American Military History. (4 cr)

Hist 3900. Topics in Medieval and Modern European History. (1-4 cr; max 16 cr; SP-- J or S or #)
Selected topics in medieval and modern European history not covered in regular courses. To be taught as staffing and demand exist.

Hist 3910. Topics in U.S. History. (1-4 cr; max 16 cr; SP-- J or S or #)
Selected topics in U.S. history not covered in regular courses. To be taught as staffing and demand exist.

Hist 3920. Topics in African History. (1-4 cr; max 16 cr; SP-- J or S or #)
Selected topics in African History not covered in regular courses. To be taught as staffing and demand exist.

Hist 3930. Topics in Ancient History. (3 cr; max 12 cr)
Selected topics in Near Eastern, Egyptian, Greek, and Roman History.

Hist 3940. Topics in Asian History. (1-4 cr; max 16 cr; SP-- J or S or #)
Selected topics in Asian history not covered in regular courses. To be taught as staffing and demand exist.

Hist 3950. Topics in Latin American History. (1-4 cr; max 16 cr; SP-- J or S or #)
Selected topics in Latin American history not covered in regular courses. To be taught as staffing and demand exist.

Hist 3951H. Junior Honors Seminar. (4 cr; SP-- History honors candidate)
Intended for History honors majors in their junior year, the course is run as a seminar, with emphasis on readings and discussion. Weekly sessions focus on selected topics relating to historical method and historiography.

Hist 3960. Topics in History. (1-4 cr; max 16 cr; SP-- J or S or #)
Selected topics in history not covered in regular courses and covering more than one geographic area/time period. To be taught as staffing and demand exist.

Hist 3961W. Major Paper. (4 cr; SP-- A-F only)
Required of History majors, usually taken in senior year. Research papers on topics students choose; work largely with primary sources. Faculty guidance in sections limited to 15 students. Sign up in Undergraduate Studies Office two semesters in advance.

Hist 3980W. Supplemental Writing in History. (1 cr; max 4 cr; SP-- must be attached to a 3-credit 3xxx or 5xxx course taken simultaneously; A-F only)
May be attached, by agreement of instructor and students, to any 3xx or 5xx course to make a writing-intensive experience.
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Hist 5379. Problems in Early American History. (3 cr)
Intensive consideration of topics in early American history. Special lecture 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 cr [max 4 cr]; SP–1301, 1302)
A seminar-style 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.

Hist 5421. Gender in Latin American History. (3 cr)
Women’s history/masculinity. Gender/colonialism, marriage, sexuality, nationalism, labor, political movements, feminism.

Hist 5436. Social History of African Women: 1850 to the Present. (3 cr; SP–#; A-F only)
Explore the historical forces which have shaped African women’s everyday lives and the ways in which these women have been active agents in the making of their own histories.

Hist 5446. Problems in West African History. (3 cr; SP–#; A-F only)
This problem-centered course explores several of the major historiographical, methodological, and theoretical debates in West African history. Core topics include state formation, trade, slavery, Islam, gender, and anticolonialism.

Hist 5464. China in the Song, Yuan, and Ming Dynasties. (3 cr; SP–3464, #EAS 3464)
China during the Song (976-1279), Yuan (1279-1368) and Ming (1368-1664) dynasties, political institutions, and cultural development. Attention to primary sources and how historians ask and answer questions about the past.

Hist 5465. China in the Qing and Jin Dynasties. (3 cr; SP–3465, #EAS 3465)
Examine the political and social history of China from about 1600 until the end of the Qing dynasty in 1911. Topics include ethnicity, daily life, legal structures, city life, and peasantry.

Hist 5467. State and Revolution in Modern China. (3 cr; SP–3467, #EAS 3467)
Modern China’s political evolution including the Taiping Rebellion, Republican Revolution, rise of Nationalist and Communist parties, Maoist era; reform under Deng Xiaoping, and the emergence of democracy in Taiwan.

Hist 5468. Social Change in Modern China. (3 cr; SP–3468)
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 5472. Early Modern Japan. (3 cr)

Hist 5473. Family, School, and Work in Modern Japanese History. (3 cr; SP–1473)
Impact of economic, social, and cultural change on males and females in the family, the educational system, the employment system from the 17th century through the 20th centuries.

Hist 5501. Medieval Europe and the World. (3 cr; A-F only)
An examination of the place of medieval Europe in the world. The relations of Europe with Asia, Africa, and the Americas. Emphasis on the knowledge of the world’s other great cultures. European travelers and explorers. Assessment of other cultures’ knowledge of Europe in the period.

Hist 5520. Topics in Chinese History. (3 cr)

Hist 5611. Proseminar in Medieval History. (3 cr; QP–Grad student or #; SP–Grad student or #; A-F only)
Examines basic scholarly bibliography for medieval Western Europe history during Middle Ages. Foundation for students to teach courses in medieval history, prepare for general doctoral exam.

Hist 5612. Proseminar in Medieval History. (3 cr; QP–#; SP–#; SP–Grad student or #; A-F only)
Examines basic scholarly bibliography for medieval Western Europe History during Middle Ages. Foundation for students to teach courses in medieval history, prepare for general doctoral exam.

Hist 5616. Proseminar in Medieval Spain. (3 cr; SP–#; A-F only)
Graduate research on the development of the medieval kingdoms of Spain from Roman times to ca. 1500. Emphasis on major social, economic, and cultural developments in Christian, Jewish, and Muslim interaction. Spain and the beginnings of European expansion.

Historiography, documents, and archives of early modern Spain analyzed. Includes reading in modern English and Spanish and practical experience with Spanish manuscript documents from the period.

Hist 5631. Proseminar: Comparative Early Modern History. (3 cr; SP–#; SP–Grad or #; A-F only)
Critical reading of historical literature dealing with integration of the globe during the early modern period, ca. 1350-1750; book reports, class discussion.

Hist 5634. Proseminar in Medieval and Early Modern European Russia. (3 cr; SP–Some coursework in history of medieval and early modern European Russia or #; A-F only)
Selected readings covering the major studies, key primary sources, and basic interpretations of the peoples of medieval and early modern European Russia as well as an analysis of the new approaches and interpretations in the field.

Hist 5650. Proseminar: Early Modern Europe. (3 cr; SP–#; A-F only)
Critical reading of historical literature for early modern Europe, ca. 1450-1700, dealing with France, Germany, Italy, the Low Countries, and Spain. Each student chooses a country to focus on; book reports, class discussion.

Hist 5651. Proseminar in Tudor England: 1485-1603. (3 cr; SP–#; A-F only)
A critical study of principal writings about English history during the Tudor and Stuart periods.

Hist 5652. Proseminar in Stuart England: 1603-1689. (3 cr; SP–#; A-F only)
Critical study of principal writings about English history.

Hist 5671. Proseminar: Modern Britain. (3 cr; SP–#; A-F only)
Critical study of major writings in British history, 1760-1945, and preparation for research in field.

Hist 5715. Readings in European Women’s History: 1450-1750 (3 cr; A-F only)
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 and Politics in Modern Europe. (3 cr; max 6 cr; SP–Grad or #; A-F only)
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 5721. Contemporary Europe From the Late 19th Century to the Beginning of the Cold War: 1890-1950. (3 cr; SP–#; A-F only)
Coursework in 19th- and/or 20th-century Europe, A
The historical literature and debates surrounding major issues in the social, political, cultural, and economic development of Europe from the turn of the century through the impact of WWII. Topics include the development of imperialism, national rivalries, social and political conflict, the rise of fascism and communism, and the origins of war.

Hist 5735. European Women’s History: 1750 to the Present. (3 cr; SP–#; SP–A-F only)
Selected themes in modern European women’s history including 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.

Hist 5740. Topics in Modern German History. (3 cr [max 12 cr]; SP–#; A-F only)
Readings and discussions on some central questions concerning the history of Germany during the modern period with a particular emphasis on the relationship between social change and political development. Offerings vary in thematic and chronological focus.

Hist 5756. Modern Greece; Mid-18th Century to Present: Greek Nationalism and Establishment of the Greek State. (3 cr; SP–#)
Evolution of modern Greece from mid-18th century to the present. Political, cultural, and socioeconomic factors that contributed to Greek nationalism. Establishment of independent Greece and its role in the European community of nations.

Hist 5761. Proseminar—Imperial Russia. (3 cr; SP–Knowledge of Russian or German or French)
Western and Russian historiography on crucial issues of imperial Russia. Polities and institutions; culture and society; modernization and reforms; new interpretations.

Hist 5762. Proseminar in 20th Century Russia. (3 cr; SP–#; A-F only)
Western and Russian historiography on crucial issues of 20th-century Russia. The nature of revolutions, the collapse of empires, new interpretations.

Hist 5777. Proseminar in Habsburg Central Europe. (3 cr; SP–#)
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.

Hist 5794. Proseminar in European Economic History. (3 cr; SP–#)
Europe’s rise in the world economy; England’s industrial revolution and uneven development in Europe; imperialism and World War I; the Great Depression; the post-1945 economic miracle; continuity and change in Eastern Europe.

Hist 5797. Methods of Population History. (3 cr)
Standard methods of population analysis with a special focus on methods widely used for historical population research.

Hist 5801. Seminar in Early American History. (3 cr; A-F only)
Introduction to the literature of early American history. Readings selected from some of the best scholarship in the field, the questions that now hold the attention of colonial historians, and the theories, methods, and sources they use in pursuit of those questions.

Hist 5821. American History in the Twentieth Century. (3 cr; A-F only)
Topics include but not limited to reconstruction, gilded age, the West, progressivism, the Depression, WW2, 1960s-present. Emphasizes social/legal history, race, gender, and immigration.

Hist 5841. Proseminar in American Economic History. (3 cr; SP–#; A-F only)
Historical literature on American economic and business history from American Revolution to the modern economy.

Hist 5844. U.S. Labor History. (3 cr)
Readings in classic and recent approaches to the history of the working class in the United States. Central topics include slavery and free labor, women’s paid and unpaid labor, management strategy, labor protest, and trade union organization.
Hist 5857. Proseminar: Readings in the History of American Women. (3 cr; SP–#) An intensive graduate-level readings course. Survey selected significant topics in historical literature, conceptual frameworks, and methodological problems in the history of American women from 1600 to the present.

Hist 5861. History of American Immigration. (3 cr; SP–#; A-F only) Readings in historical literature on immigration to the United States. Emphasis on recent works distinguished by new research methodologies and interpretations.

Hist 5862. History of American Immigration. (3 cr; SP–#; A-F only) Readings in historical literature on immigration to the United States. Emphasis on recent works distinguished by new research methodologies and interpretations. Each student undertakes an independent reading and/or research project.

Hist 5864. Proseminar: African-American History. (3 cr; SP–#; A-F only) Readings in African-American history designed for both incoming and advanced graduate students. Structured around various themes and issues including slavery, Reconstruction, the Great Depression, and the civil rights movement.

Hist 5865. Proseminar: African-American History. (3 cr; SP–#; A-F only) The second half of the graduate sequence in African-American history is oriented primarily toward thinking about and performing independent research.

Hist 5871. Readings in U.S. Intellectual History: 19th-20th Centuries. (3 cr; SP–#) Definitions of American national identity from 1879 to the present as expressed in politics, religion, literature, painting, music, architecture, and history.

Hist 5881. American Foreign Relations to 1895. (3 cr; SP–#) 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.

Hist 5882. American Foreign Relations Since 1895. (4 cr; SP–#) 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.

Hist 5890. Problems in American Indian History. (3 cr; SP–#) Intensive consideration of topics in American Indian history. Topics may include social history, history of particular regions, political systems, education, and American Indian politics.

Hist 5900. Topics in European/Medieval History. (1-4 cr [max 16 cr]; SP-Grad or advanced undergrad student with #) Selected topics in European or medieval history not covered in regular courses; taught as staffing permits.

Hist 5901. Latin America Proseminar: Colonial. (3 cr; SP–#) Introduces beginning graduate and advanced undergraduate students to major historical writings on various Latin American themes.

Hist 5902. Latin America Proseminar: Modern. (3 cr; SP–#) Introduces beginning graduate and advanced undergraduate students to major historical writings on various Latin American themes.

Hist 5910. Topics in U.S. History. (1-4 cr [max 16 cr]; SP-Grad or advanced undergrad student with #) Selected topics in U.S. history not covered in regular courses. Taught as staffing permits.

Hist 5920. Topics in African Social History. (3 cr [max 16 cr]; SP-Grad or #) Focuses on the experiences of Africans in their workplaces, households and communities. Detailed treatment of selected historical themes. Topics vary by semester.

Hist 5930. Topics in Ancient History. (1-4 cr [max 16 cr]; SP-Grad or #; A-F only) Selected topics in ancient history not covered in regular courses. To be taught as staffing permits and as enrollment warrants.

Hist 5931. Topics in Comparative Third World History. (3 cr [max 16 cr]; SP-Grad student or #; A-F only) Topics specified in Class Schedule.

Hist 5932. African Historiography and Methodology. (3 cr; A-F only) Recent analysis of several major themes in the historiography of pre-colonial and colonial Africa and the methods used by African historians to reconstruct the African past.

Hist 5933. Seminar in Ancient History. (3 cr; SP–Previous coursework in Greek or Roman history; #; A-F only) Seminar on a selected topic in ancient history.

Hist 5934. Comparative History and Social Theory. (4 cr; A-F only) Focuses on works of history/sociology that are broadly comparative/theoretical and speak to issues of state formation, social movements, social structure, and economic development.

Hist 5940. Topics in Modern Chinese History. (1-4 cr [max 16 cr]; SP–#; A-F only) Possible topics include cultural, economic, intellectual, political, and social history.

Hist 5941. Readings in Chinese Documents. (3 cr; SP–Reading knowledge of Chinese) 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.

Hist 5942. Topics in the History of Medicine. (3 cr; SP–Prior history of medicine or history of science course recommended for undergrads) An exploration of topics central to the history of medicine. Emphasis on mid-18th century to the present. Topics vary yearly.

Hist 5950. Topics in Latin American History. (1-4 cr [max 16 cr]; SP-Grad or advanced undergrad student with #; A-F only) Selected topics in Latin American history not covered in regular courses. Taught as staffing permits.

Hist 5960. Topics in History. (1-4 cr [max 16 cr]; SP–Grad or advanced undergrad with #) Selected topics in history not covered in regular courses. Taught as staffing permits.

Hist 5962. Expansion of Europe. (3 cr; A-F only) A research proseminar on the actions of Europeans in the wider world from 1350 to 1790. Based on documents in the James Ford Bell Library.

Hist 5964. Comparative Economic History. (3 cr; SP–#) 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, the state and economic development, and the industrial revolution.

Hist 5970. Advanced Research in Quantitative History. (4 cr [max 16 cr]) Students will carry out publishable-quality research on a quantitative historical topic.


Hist 5980. Topics in Comparative Women's History. (3 cr) Cross-cultural/ thematic explorations in history of women. Topics vary. May include gender and colonialism; women and class formation; women and religion; sexuality; medical construction of gender; women's narratives as historical sources; gender and politics.

Hist 5993. Directed Study. (1-16 cr [max 16 cr]; SP–#; A-F only) Qualified senior and graduate students may register for work on tutorial basis. Guided individual reading or study.

Hist 5994. Directed Research. (1-16 cr [max 16 cr]; SP–#; A-F only) Qualified senior and graduate students may register for work on a tutorial basis.

History of Medicine (HMed)

College of Liberal Arts

HMed 3001W. Health Care in History I (3 cr) Introduction to intellectual/social history of European/American medicine, health care from classical antiquity through 18th century.

HMed 3002W. Health Care in History II (3 cr) Introduction to intellectual/social history of European/American medicine, health care in 19th/20th centuries.

HMed 3055. Women, Health, and History. (3 cr) 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 5055. Women, Health, and History. (3 cr) 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 5200. Early History of Medicine to 1700. (3 cr; A-F only) An introductory survey of the history of medicine in Europe and America.

HMed 5201. History of Medicine from 1700 to 1900. (3 cr; SP–HMed 5-200) An introductory survey of the history of medicine in Europe and America.

HMed 5210. Seminar: Theories and Methods in Historical Medicine. (3 cr; A-F only) History and methodology of the history of medicine.

HMed 5211. Seminar: Theories and Methods in Historical Medicine. (3 cr; SP–5210; A-F only) Use of archives, primary sources. Supervised research project.
HSci 3333V. Honors Course: Issues in Twentieth Century American Science. (3 cr) Historical and philosophical perspectives on the development of science in America; role of science in American culture and society; impact of science on society and its role in shaping American culture and society.

HSci 3401L. Ethics in Science and Technology. (3 cr; SP–§5401) Historical and philosophical perspectives on the development of science in America; role of science in American culture and society; impact of science on society and its role in shaping American culture and society.

HSci 3714. Technology and Western Civilization: To the Industrial Revolution. (4 cr; QP–§1711, §1712; SP–§1714) History of technology in its cultural context from earliest times to the Industrial Revolution. Neolithic Revolution, Bronze and Iron Ages, ancient civilizations, Greece, Rome, Middle Ages, and Renaissance.

HSci 3715. Technology and Western Civilization: Since the Industrial Revolution. (4 cr; QP–§1713; SP–§1715) History of technology in its cultural context from earliest times to the Industrial Revolution. Neolithic Revolution, Bronze and Iron Ages, ancient civilizations, Greece, Rome, Middle Ages, and Renaissance.


HSci 3814. Introduction to History of Science: Ancient Science to the Scientific Revolution. (4 cr; QP–§3811, §3812; SP–§3814) Development and changing nature of the sciences are placed in their cultural context. Babylonian and Greek science; decline and transmission of Greek science; Scientific Revolution (1500-1700) from Copernicus to Newton.

HSci 3815. Introduction to History of Science: Modern Science. (4 cr; QP–§3813; SP–§3815) Development and changing nature of the sciences are placed in their cultural context. Newton and new mechanics; new chemistry; light; Darwin and species; new experimental biology; atomic and nuclear physics; relationships among science, technology, society, and politics.

HSci 3211. Biology and Culture in the 19th and 20th Centuries. (3 cr; QP–§5211, SP–§5211) 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 3244. History of Ecology and Environmentalism. (3 cr; SP–§5244) Development of ecological thought from 18th century natural theology to contemporary ecology and conservation biology; changing views of “balance” and the “economy” of nature; conceptual and methodological developments in ecosystems ecology; connections between ecology and conservation, and between population and environmental politics.

HSci 3331. Technology and American Culture. (3 cr; QP–§5331, SP–§5331) Development of American technology in its cultural and intellectual context from 1790 to present. Technology of Native Americans; transfer of technology to America; establishment of an infrastructure promoting economic growth; and social responses to technological developments.

HSci 3332. Science and American Culture. (3 cr; QP–§5332; SP–§5332) Development of American science, including transfer of science to America; development of indigenous traditions for pursuit of science; establishment of infrastructure for education and research; response of public to scientific development.
Honors Colloquia (HCol)
CLA Honors Program
College of Liberal Arts
HCol 1001H. Honors Colloquium: Introduction to the Arts and Sciences. (1 cr; SP–1st term fr; honors; S-N only)
Introduction to problems these disciplines address, methods they use. Discussions led by faculty representing various disciplines.

HCol 1010H, 1020H, 1030H, 1040, 1050, 1060. Honors Colloquium. (2 cr; [max 12 cr]; QP–[Fr or sr] or [honors; SP–[Fr or sr]; honors)] Special topics. Discussions, active learning. Often interdisciplinary in perspective.

HCol 1070, 1080, 1090, 1120, 1130, 1140. Honors Colloquium. (1-3 cr; SP–Fr or sr; honors div regis) Special topics course designed to add breadth and depth to the education of honors students. Discussions and active learning. Often interdisciplinary in perspective.

HCol 1093. Directed Studies. (1-4 cr; max 16 cr; QP–[Fr or sr] or [honors; A, Q]; SP–[Fr or sr] or [honors; A, Q]) For additional research related to a colloquium topic.

HCol 1100V. Honors Colloquium. (3 cr; max 12 cr; QP–[Fr or sr]; SP–[Fr or sr]; honors) Special topics. Discussions, active learning. Often interdisciplinary in perspective.

Honors Seminar (HSem)
CLA Honors Program
College of Liberal Arts
HSem 3010, 3030, 3050. Honors Seminar. (2-4 cr; max 12 cr; SP–[Fr or sr]; honors) Special topics. Discussions, active learning. Often interdisciplinary.

HSem 3020, 3040. Honors Seminar. (3-4 cr; max 12 cr; QP–[Fr or sr]; SP–[Fr or sr]; honors) Special topics. Discussions, active learning. Often interdisciplinary in perspective.

HSem 3060, 3070, 3080, 3130, 3140. Honors Seminar. (1-3 cr; SP–[Fr or sr]; honors div regis; A-F only) Special topics course designed to add breadth and depth to the education of honors students. Discussions and active learning. Often interdisciplinary in perspective.

HSem 3093. Directed Studies. (1-4 cr; max 16 cr; QP–[Fr or sr]; SP–[Fr or sr]; honors; A, Q; SP–[Fr or sr]; SP–[Fr or sr]; honors; A, Q) Additional research related to seminar topic.

HSem 3110, 3120. Honors Seminar. (3 cr; max 12 cr; SP–[Fr or sr]; honors div regis; A-F only) Special topics course designed to add breadth and depth to the education of honors students. Discussions and active learning. Often interdisciplinary in perspective.

Honicultural Science (Hort)
Department of Horticultural Science
College of Agricultural, Food, and Environmental Sciences
Hort 1001. Plant Propagation. (4 cr)
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 1002. Home Horticulture. (3 cr; SP–Non-horticulture majors)
Fundamental concepts of plant identification, growth, and culture with practical applications to home landscape, floral design, house plants, fruit, flower, and vegetable gardening.

Hort 1003. Master Gardner Core Course: Horticulture for Home and Garden. (3 cr)
Foundation in soil-plant relationships, propagating, plant pathology, indoor, herbaceous, and woody plants; lawn foundations; and pest management. Emphasizes extension publications/resources useful in answering consumer horticulture questions.

Hort 1011. Herbaceous Landscape Plants. (4 cr)
Taxonomy, identification, ecology, and landscape uses of annuals, perennials, wildflowers, ferns, tender/hardy bulbs, and tropics/sub-tropicals used in interior landscapes.

Hort 1012. Woody Landscape Plants. (4 cr)
Taxonomy, identification, ecology, and landscape uses of trees, shrubs, vines, groundcovers, and evergreens. Lecture and lab.

Hort 1013. Floral Design. (2 cr)

Hort 1014. Edible Landscaping. (2 cr; QP–1036; SP–1001)
Edible plants in the home landscape. Variety of plant materials available and their placement, and the impact of decisions on production. Plant combinations to enhance design and production considerations. Writing and decision cases used.

Hort 3002. Greenhouse Management. (3 cr; QP–1036; SP–1001; A-F only)

Hort 3005. Environmental Effects on Horticultural Crops. (2 cr; QP–1036; SP–[1311, Chem 1001 or equiv)] or [SP–[1001, Biol 3002, Biol 3005, Chem 1021 or equiv] or [A-F only])
Effects of environment on plant growth/physiology. How horticulturists manipulate environment to produce high quality plants.

Hort 3018. Landscape Operations. (2 cr; QP–1036 or # or SP–1001 or #)
Demonstration/hands-on experience with landscape operations. Planting, mulching, staking, pruning, fertilization, large tree care, seeding, sodding, aerifying, calibrating, irrigating, surveying. Discussion/lab. Team taught by faculty, staff, and industry professionals.

Hort 3090. Horticultural Pracitum. (2-4 cr; max 12 cr; QP–[Fr or sr]; SP–[Fr or sr] or Hort major; # SP–[Fr or sr] or Hort major; # Approved field, laboratory, or greenhouse experiences in application of horticultural information and practices.

Hort 4021. Landscape Design, Implementation, and Management I. (4 cr; QP–1021, 1022, 1036; SP–1001, 1011, 1012)
Based on philosophy of sustainable landscape theory and practice. Emphasis on sustainability to all phases of landscape development. Lab includes design, implementation, and management of actual landscape.

Hort 4041. Nursery Production and Management I. (4 cr; QP–1021, 1036; or #; SP–1001, 1012) or (A-F only)
Production, maintenance, and marketing of woody ornamental plants. Establishment/maintenance of nursery or garden centers. Lab, field trips.

Hort 4041W. Nursery Production and Management I. (4 cr; QP–1021, 1036; or #; SP–1001, 1012) or (A-F only)
Production, maintenance, and marketing of woody ornamental plants. Establishment/maintenance of nursery or garden centers. Lab, field trips.

Hort 4051. Floriculture Production and Management I. (4 cr; QP–1036, 1022, 3002; #; SP–1001, 1011, 3002; #)
Problem-solving, management practices for propagation, production, and use of floral crops. Emphasizes potted plants, hydroponics. Growing, marketing, and using floral crops to modify the environment. Lecture, lab, field trips.

Hort 4061. Turf and Landscape Management. (4 cr; QP–5041 or #; SP–1001, 1011, 1012)

Hort 4071. Applications of Biotechnology to Plant Improvement. (4 cr; QP–Chem 1001 or 1051, GCB 3002 or equiv; SP–Chem 1011 or 1021, GCB 3002 or equiv) Fundamentals of plant molecular biology and biotechnology with emphasis on their applications to plant propagation and crop improvement. Lab includes plant tissue culture, gel electrophoresis, and other techniques of plant molecular biology.

Hort 4072. Growing Plants Organically: What It Means To Be Green. (3 cr; QP–1036 or Biol 1102 or PBio 3012 or equiv, jr or sr or # or #; SP–1001 or 2022 or PBio 2030 or-equiv or jr or sr or #)
Science and ethics of organic cultivation. What is meant by “green” from a legal, scientific, and ethical perspective? Explore organic agriculture as an organic practice, prepare a written report, and lead a class discussion.

Hort 4092. Special Topics in Horticulture. (1-5 cr; max 15 cr; QP–Varies with topics; SP–Varies with topics)
Topics of public and scientific interest in horticulture. Content varies each semester, inquire at department office before registration. Lab fees may be assessed.

Hort 4096. Professional Experience Program: Internship. (1-3 cr; max 6 cr; QP–COAFES undergrad; #; complete internship contract available in COAFES Career Services before registering; UC only; S-N only)
Professional experience in horticulture firms or government agencies attained through supervised practical experience; evaluate reports, consultations with faculty advisers and employers.

Hort 4401. Plant Genetics and Breeding. (4 cr; QP–Biol 1009 or equiv or grad, #; SP–Biol 1009 or equiv or grad, # Principles of plant genetics and environmental variation. Applications of genetics to crop evolution and breeding of self-pollinated, cross-pollinated, and asexually propagated crops. Lab experiments investigate hybridization, variation, and selection.

Hort 5007. Advanced Plant Propagation. (3 cr; QP–3001, SP–3003)
Control of growth and development in sexual and asexual reproduction of plants including effects of environment, plant growth substances and protocols on dormancy, origin and development of adventitious structures, and success with specialized propagation techniques. Lecture/lab.

Hort 5018. Landscape Operations. (3 cr; QP–1036 or #; SP–1001 or #)
Demonstration/hands-on experiences with landscape operations. Planting, mulching, staking, pruning, fertilizing, large tree care, seeding, sodding, aerifying, calibrating, irrigating, surveying. Discussion/lab. Team taught by faculty, staff, and industry professionals.

Hort 5021. Landscape Design, Implementation, and Management II. (3 cr; QP–5041 or #; SP–4021 or #)
Residential, commercial, and recreational sites. Architectural/graphic techniques, plant drawings, sections, elevations, perspectives, working drawings. Grading and site manipulation, including surveying, irrigation, and drainage. Development of business/grounds management plans. Landscape estimating/bidding.
Course Descriptions

Hort 5022. Topics in Plant Science for Teachers. (1-4 cr; QP–Biol 1103 or equiv or ed course; no cr for Hort major or grad student; SP–Biol 2102 or equiv or ed course; no cr for Hort major or grad student)

Hort 5023. Public Garden Management. (2 cr; SP–#) Areas of operations (e.g., planning; educational programming; plant conservation/curation; public relations; garden, personnel, and business management) and an overview of knowledge/skills necessary for public garden management.

Hort 5024. Landscape Development. (1 cr; SP–5021 or A-F only) Hands-on experience in landscape development. Plan takeoffs, site evaluation/preparation, planting, installation/construction, equipment operation, hard-good/plant handling.

Hort 5031. Sustainable Fruit Production Systems. (2 cr; QP–1036 or #; SP–1001, 3005; A-F only) Principles of fruit production. Emphasizes temperature effects of fruit crops. Integrated management of fruit cropping systems, including site selection, cultural management practices, taxonomic classification, physiological/environmental control of plant development. Introduces students to understanding various turf cropping systems.

Hort 5032. Sustainable Commercial Vegetable Production Systems. (3 cr; QP–[3005, Ent 3001, PIPp2001, Soils 2125] or #; A-F only) Principles of commercial vegetable production. Integrated management of vegetable cropping systems: site selection/environment, seed/stand establishment, cultural management practices, commodity use, harvesting from harvest to market. Perspectives on types of vegetable cultivars. Origin, historical significance/improvement through breeding, nutrition/medicinal aspects, physiological/environmental control of development.

Hort 5041. Nursery Production and Management II. (3 cr; QP–5046 or #; SP–4041; A-F only) In-depth look at nursery practices, including innovative production systems. Specific crop schedules, using technical and economic data for production. Pest management and regulations for the nursery industry.

Hort 5042. Nursery Operations. (1 cr; QP–[5046, 5047] or #; SP–5041 or #) Hands-on experience in nursery production. Operating the equipment commonly used in nurseries.

Hort 5051. Floriculture Production and Management II. (4 cr; QP–5054 or #; SP–4051; A-F only) Propagation, production, and utilization of floral crops with emphasis on bedding plants, perennials, and cut flowers. Grower, market, and utilize horticultural plants. Cultural practices; concepts behind manipulation of environmental factors to achieve desired plant growth and quality. Lab, field trips.

Hort 5061. Turfgrass Science. (3 cr; QP–3072; SP–4061) For advanced students in turf with career objectives in professional turf management. Emphasis on ecology, physiology, and theory of turf population dynamics and specialized management situations such as golf course, commercial sod production, and fine turf athletic settings.

Hort 5071. Restoration and Reclamation Ecology. (3 cr; QP–Biol 1103 or 3012; Biol 5041, Ecol 3001 or equiv or #; SP–Biol 2022 or Biol 3002, Biol 1001 or Biol 3407 or equiv or #) Ecological and physiological concepts as a basis for revegetation of grasslands, wetlands, forests, and other landscapes. Plant selection, stand establishment, evaluating revegetation success. State and federal programs that overview restoration and reclamation programs. Field trips within Minnesota.

Hort 5090. Directed Studies. (1-6 cr; max 18 cr) QP–8 upper div Hort courses, # SP–8 upper div Hort courses, # In-depth exploration of concepts, technology, aterials, or programs in specific area to expand professional competency and self-confidence. Planning, organizing, implementing, and evaluating knowledge obtained from formal education and from experience.

Hort 5183. Water, Minerals, and Translocation. (3 cr; QP–Soil 3125 or equiv or PIPp 1xxx or SP–Soil 2125 or equiv or PIPp 1xxx; A-F only) Transport processes in plants including water and nutrient absorption and distribution, effects of and adaptations to water and nutrient stress, functions of mineral nutrients, and translocation of photosynthates.

Hort 5990. Special Workshop in Horticulture. (1-4 cr; SP–3005; A-F only) Workshops on a variety of topics in horticulture offered in locations other than the Twin Cities campus. See Class Schedule or department for current offerings.

Human Ecology (HE) College of Human Ecology

HE 1200V. First-Year Honors Colloquium. (1-2 cr; max 4 cr; SP–CHE honors; A-F only) Diverse ways of knowing about world, fields of study organized to understand human environment, their place within academic/career pathways that cross within intellectual traditions/professional fields.

HE 1201. Career Exploration and Job/Internship Search. (1 cr; QP–SP–1xxx, 1xxx or #) Identifying/developing academic/ professional goals through career decision making, self-assessment, occupational research, job search strategies. Building a career plan using college experience, coursework, internships, community service, campus involvement, work experience, travel, hobbies.

HE 1902. Freshman Seminar: Cultural Diversity. (1-3 cr; max 6 cr; QP–Fr; SP–Fr; A-F only) Issues related to human ecology disciplines and cultural diversity. Topics announced in advance. Small-group seminar.

HE 1910. Freshman Seminar. (1-3 cr; max 6 cr; SP–Fr; A-F only) Issues related to human ecology disciplines. Topics announced in advance. Small-group seminar.

HE 1910W. Freshman Seminar. (1-3 cr; max 6 cr; SP–Fr; A-F only) Issues related to human ecology disciplines. Topics announced in advance. Small-group seminar.

HE 4140. Special Topics in Human Ecology. (1-4 cr; max 12 cr; QP–Fr; Prereq depends on topic: SP–#) In-depth study of a selected topic.

HE 4150. Honors Seminar. (1-3 cr; max 6 cr; SP–Honors student; CHE requirements must take A-F) Topics specified in Class Schedule.

HE 4150H. Honors Seminar. (1-3 cr; max 6 cr; SP–Honors; CHE students must take A-F) Topics specified in Class Schedule.

HE 4160H. Honors Capstone Project. (1-4 cr; max 4 cr; QP–#; SP–CHE honors; A-F only; A-F only) Individualizes the honors experience by connecting aspects of major program with special academic interests.

HRD 5010. Foundations of Human Resource Development. (1 cr) Introduction to human resource development as a field of study and practice.


HRD 5030. Psychological Foundation of Human Resource Development. (1 cr; SP–5010) Introduction to psychology as a core discipline supporting the theory and practice of human resource development.


HRD 5050. Strategic Planning through Human Resources. (3 cr; SP–5001 or 5101, 5102, 5103, 5104; A-F only) The theory and practice of strategically developing, utilizing, and aligning human resources as a major contributor to organizational and quality improvement success.

HRD 5060. Evaluation in Human Resource Development. (3 cr; A-F only) Evaluation of human resource development efforts from the perspective of impact on organizations, work processes, and individuals, plus follow-up decisions.

HRD 5110. Facilitating and Mentoring Skills. (1 cr) 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.

HRD 5190. Internship: Human Resource Development. (1-10 cr; max 10 cr; SP–5001, 5201 or 5301; S-N only) Students apply and contract for human resource development positions. Contracts describe specific HRD responsibilities to be fulfilled during internship and theory-to-practice learning outcomes.

HRD 5201. Personnel Training and Development. (3 cr; A-F only) Introduction to the personnel training and development process in organizations and the advancement of expertise in the areas of analysis, design, development, implementation, and evaluation.

HRD 5202. Training on the Internet. (3 cr) Major concepts, skills, and techniques for giving and receiving training on the Internet.

HRD 5301. Organization Development. (3 cr; A-F only) Introduction to major concepts, skills, and techniques for organization development and human resource development.

HRD 5302. Managing Work Teams in Business and Industry. (3 cr; SP–2 core courses in HRD; HRD–A-F only) Frameworks and strategies for developing effective work teams. Skill development in facilitating resolution of conflicts in organizations. Provides foundational information as well as practical applications for participants (upper-level and graduate students) to become small team leaders.

HRD 5408. International Human Resource Development. (3 cr) Problems, practices, programs, theories, and methodologies in human resource development as practiced internationally.

HRD 5409. Planning and Decision-Making Skills. (1 cr) Introduction to the disciplines of planning and decision making typically used in project improvement interventions. Tools and methods for facilitating group decisions and problem solving.

HRD 5496. International Field Study in Human Resource Development. (3 cr; SP–5001) Field study of the organization development, personnel training and development, career development, and quality improvement theories and practices in a selected nation.
Human Resources and Industrial Relations (HRIR)

**Industrial Relations Center**

**Curtis L. Carlson School of Management**

**HRIR 3021. Human Resource Management and Industrial Relations.** (2 cr; OP–Econ 1101, 1102, Psy 1001, SP–Econ 1102, 1103, Psy 1001)


**HRIR 3024. Governing the Workplace: Comparative Perspectives.** (2 cr)

An international comparison of who is allowed to make the rules governing the employment relationship. Study of alternative models/systems (e.g., business, government, employees, unions, market forces, mixed models) in the context of the U.S. and other countries. Exploration of models for the future.

**HRIR 3031. Staffing and Selection: Strategic and Operational Concerns.** (2 cr; OP–[At least 50 sem cr or 75 qtr cr], 2.00 GPA or A)


**HRIR 3032. Training and Development.** (2 cr; OP–[At least 50 sem cr or 75 qtr cr], 2.00 GPA or A)

Introduction to theory/research/practice of design/implementation/evaluation of employee training/development programs. Training as process for influencing individual/organizational outcomes (e.g., performance, job satisfaction, work climate).

**HRIR 3041. The Individual in the Organization.** (2 cr)

Focus on factors influencing individual work performance. Includes motivation, perceptual differences, career choice, psychological contracts, assumptions about workers/work, leadership/management, learning/skill development, openness to change. Examines evidence on current trends.

**HRIR 3042. The Individual and Organizational Performance.** (2 cr)

Factors influencing group, team, and organizational performance. Examines systems that drive organizational success. Topics include job design and organization structure, organization effectiveness measures, culture, group dynamics, teamwork; power and influence.

**HRIR 3051. Compensation: Theory and Practice.** (2 cr; OP–[At least 50 sem cr or 75 qtr cr], 2.00 GPA or A)

Introduction to compensation/reward programs in employing organizations. Theories of organizational/employee behavior used in design/implementation of pay programs. Design, implementation, and evaluation of job evaluation, salary, merit-based pay, and other compensation programs.

**HRIR 3071. Union Organizing and Labor Relations.** (2 cr)

Analysis of labor unions, employee associations, and collective bargaining within the framework of contemporary American legislation and policy. Covers organizing/labor unions; union, employee, and management strategies and responsibilities, historical influences on policy and practice in the private and public sectors.

**HRIR 3072. Collective Bargaining and Dispute Resolution.** (2 cr)

Collective bargaining, contract administration, grievance processing, interest/rights arbitration, strikes and related policies and practices of employers, workers, and labor unions in dealing with worker representation in the private and public sectors. Impact and transfer of practices to the non-union sector are considered.

**HRIR 3121. Human Resource Management and Industrial Relations.** (2 cr; OP–CSOM business minor; SP–CSOM business minor)


**HRIR 5000. Topics in Human Resources and Industrial Relations.** (1-8 cr)

Selected topics of current relevance to human resource management and industrial relations.

**HRIR 5021. Systems of Conflict and Dispute Resolution.** (4 cr)

Introduction to theoretical and practical treatment of conflict settlement in interpersonal, work-related, community, business, and international settings. Lectures, discussions, observations of actual dispute resolution sessions, and lab exercises with students participating in dispute resolution simulations applied to industry.

**HRIR 5022. Managing Diversity.** (2 cr; OP–[At least 50 sem cr or 75 qtr cr], 2.00 GPA or A)

Ways to effectively manage increasingly diverse workforce. Human resource practices examined with respect to diversity. How to incorporate diversity into decision making to enhance organizational performance.

**HRIR 5023. Personnel and Industrial Relations Law.** (2 cr; OP–[At least 50 sem cr or 75 qtr cr], 2.00 GPA or A)

Growing body of laws and their application to workplace: human rights, equal employment, compensation/benefit, employee protection, labor relations. Special issues (e.g., wrongful discharge, sexual harassment, defamation) discussed in context of statute, case law, and their application to work setting.

**HRIR 5024. Employee Performance: Appraisal and Management.** (2 cr; OP–[At least 50 sem cr or 75 qtr cr], 2.00 GPA or A)

How employee performance is organized, appraised, and managed to achieve organizational/individual performance goals. Job design standards, employee appraisal systems, worker satisfaction.

**HRIR 5025. Comparative and International Human Resources and Industrial Relations.** (2 cr; OP–Grad majors must register A-F)


**HRIR 5061. Public Policies on Work and Pay.** (3 cr)

Analysis of public policies regarding employment, unions, and labor markets. Public programs affecting wages, unemployment, training, worker mobility, security, and quality of work life. Policy implications of the changing nature of work.

**HRIR 5091. Independent Study in Human Resources and Industrial Relations.** (1-8 cr; OP–Grad majors must register A-F)

Individual readings or research topics in human resources and industrial relations.

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**Humanities (Hum)**

**Department of Humanities**

**College of Liberal Arts**

**Hum 1001. Humanities in the West.** (1 cr; SP– §3001)

Greek and Roman civilization, rise of Christianity. Epic and lyric poetry, drama, architecture, sculpture, philosophy, religion. Integrative study of works by creative figures such as Homer, Herodotus, Euphronius, Sophocles, Aristophanes, Plato, Aristotle. Caesar, Lucretius Virgil, Ovid, Petronius, Augustine, Boethius.
Hum 1002. Humanities in the West II. (3 cr; SP–§3002) Sixth to Fourteenth centuries: Growth of Christendom; monasticism; feudal and courtly love, rise of towns and universities. Art and architecture: Byzantine, Romanesque and Gothic. Music: Gregorian chant, minstrelsy, liturgical drama. Literature: epic, romance. Dante. Islam. Scholastic philosophy; Abelard, Aquinas.

Hum 1003. Humanities in the West III. (4 cr; SP–§3003) Fourteenth century: Italian humanism and cultural reaction in northern Europe. Humanism. Counter-Reformation, religious wars. New science, philosophy. Literature, art, music. Works by creative figures such as Petrarch, Machiavelli, Erasmus, Luther, Cervantes, Descartes, Moliere, Michelangelo, Bernini, Rembrandt, Josquin, Bach.

Hum 1004. Humanities in the West IV. (3 cr; SP–§3004) Eighteenth-century Europe. Old Regime through French Revolution and Napoleon; new science, Enlightenment, liberalism; art, music. Integrative study of works by creative figures such as Pope, Voltaire, Rousseau, Diderot, Goethe, Watteau, Boucher, Hogarth, David, Goya, Mozart, Haydn.


Hum 3001. Humanities in the West I. (4 cr; SP–§1001) Greek and Roman civilization, rise of Christianity: Epic and lyric poetry, drama, architecture, sculpture, philosophy of religion. Integrative study of works by creative figures such as Homer, Hesiod, Aeschylus, Sophocles, Euripides, Aristophanes, Plato, Aristotle, Caesar, Lucretius Virgil, Ovid, Petronius, Augustine, Boethius.

Hum 3002. Humanities in the West II. (3 cr; SP–§1002) Sixth to Fourteenth centuries: Growth of Christendom; monasticism; feudalism and courtly love, rise of towns and universities. Art and architecture: Byzantine, Romanesque and Gothic. Music: Gregorian chant, minstrelsy, liturgical drama. Literature: epic, romance. Dante. Islam. Scholastic philosophy; Abelard, Aquinas.

Hum 3003. Humanities in the West III. (4 cr; SP–§1003) Fourteenth century: Italian humanism and cultural reaction in northern Europe. Humanism. Counter-Reformation, religious wars. New science, philosophy. Literature, art, music. Works by creative figures such as Petrarch, Machiavelli, Erasmus, Luther, Cervantes, Descartes, Moliere, Michelangelo, Bernini, Rembrandt, Josquin, Bach.

Hum 3004. Humanities in the West IV. (3 cr; SP–§1004) Eighteenth-century Europe. Old Regime through French Revolution and Napoleon; new science, Enlightenment, liberalism; art, music. Integrative study of works by creative figures such as Pope, Voltaire, Rousseau, Diderot, Goethe, Watteau, Boucher, Hogarth, David, Goya, Mozart, Haydn.


Hum 3021. Introduction to the Historical Foundations of Modern Education. (3 cr; SP–§4021) Historical and social conditions leading to modern education derived from pre-classical sources, the Greeks, Romans, Middle Ages, Renaissance, Reformation, Enlightenment, and Industrial Revolution. Basic background course.

Hum 3022. Introduction to the History of Western Educational Thought. (3 cr; SP–§4023; EdPA 3023, EdPA 5023) Great educational classics of Western civilization by: Plato, Aristotle, Quintilian, Montaigne, Milton, Locke, Rousseau, and others.

Hum 3027. Lyric Song in Medieval Culture. (3 cr) Courtly, paraliturgical, and popular song traditions, 1100-1500, in specific contexts: castle, palace, monastery, nunnery, cathedral, theater, tavern, street and countryside. Social roles of men and women as patrons, performers, poets, composers. Writing historical narratives and recreating medieval performance traditions.

Hum 3029. Music in the Twentieth Century. (3 cr) Surveys music in European and American culture from 1890s to present. Emphasizes interactions between high art, popular and ethnic musics, contributions of men and women as composers and performers, concurrent developments in the arts, dance, and literature, music as social commentary.

Hum 3036. Islam: Religion and Culture. (3 cr) Religion of Islam, faith, practices, sectarian splintering, expansion outside original home status to world religions, institutions, status in world societies—Asia, Europe, Americas.


Hum 3281. European Intellectual History: the 18th and 19th Centuries. (3 cr) First of a two-semester course dealing with logical, philosophical and methodological issues in the historical, social and natural sciences. The period covered is from the late seventeenth century to the mid-nineteenth.

Hum 3282. European Intellectual History: the Late 19th and 20th Centuries. (3 cr) Second and concluding semester of readings in fundamental texts dealing with issues in logic, philosophy and the methodological history of the social, cultural and natural sciences, from the late nineteenth century to the mid-twentieth. There is no text. Readings are from original sources.

Hum 3635. Hinduism: From Gypsus to 13th Century. (2 cr) Development of classical Hinduism in its multiple cultural and social manifestations, from the 4th to 13th century C.E. Art, religion, mythology, literature, philosophy, caste system.

Hum 3677. Self-Realization in 20th-Century Western Literature. (2 cr) Quest for meaning and process of individuation. Works by Conrad, Kate Chopin, Joyce, Sartre, Hesse.

Hum 3910. Topics in the Humanities. (2-4 cr; SP–§3010) Topics will vary from offering to offering and will be specified in Class Schedule.

Hum 3920. Honors Course: Topics in the Humanities. (2-4 cr; SP–§3010) Topics will vary from offering to offering and will be specified in Class Schedule.

Hum 3970. Directed Studies. (1-4 cr; SP–§3010) Guided individual reading or study.

Hum 3971. Directed Studies. (1-4 cr; SP–§3010) Guided individual reading or study.

Hum 4021. Historical Foundations of Modern Education. (3 cr; SP–§3021; EdPA 3021, EdPA 5021) Historical and social conditions leading to modern education derived from pre-classical sources, the Greeks, Romans, Middle Ages, Renaissance, Reformation, Enlightenment, and Industrial Revolution. Basic background course.

Hum 4023. History of Western Educational Thought. (3 cr; SP–§3023; EdPA 3023) Great educational classics of Western civilization by: Plato, Aristotle, Quintilian, Montaigne, Milton, Locke, Rousseau, and others.

Hum 4837. Nietzsche as Cultural Critic. (2 cr; SP–§3010) Nietzsche’s contributions to philosophy, psychology, and criticism of religion, culture, and society.

Hum 4910. Topics in the Humanities. (2-4 cr; SP–§3010) Topics will vary from offering to offering and will be specified in Class Schedule.

Hum 4920. Honors Course: Topics in the Humanities. (2-4 cr; SP–§3010) Topics will vary from offering to offering and will be specified in Class Schedule.

Hum 4970. Directed Studies. (1-4 cr; SP–§3010) Guided individual reading or study.

Hum 4971. Honors Course: Directed Studies. (1-4 cr; SP–§3010) Guided individual reading or study.

Industrial Engineering (IE) Department of Mechanical Engineering Institute of Technology

IE 3041. Industrial Assignment I. (2 cr; QP–ME upper division, registration in ME co-op program; SP–ME upper division, registration in ME co-op program; A-F only) Industrial work assignment in engineering intern program. Evaluation based on student’s formal written report covering semester’s work assignment.

IE 4042. Industrial Assignment II. (2 cr; QP–ME upper division, registration in ME co-op program; SP–ME upper division, registration in ME co-op program; A-F only) Industrial work assignment in engineering intern program. Evaluation based on student’s formal written report.

IE 4043. Industrial Assignment III. (4 cr; QP–3742; SP–4042; A-F only) 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.

IE 4521. Statistics, Quality, and Reliability. (4 cr; QP–Math 1261 or equiv; SP–Upper div or grad student or CNR) 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, availability.

IE 5080. Topics in Industrial Engineering. (4 cr; QP–Upper div or grad student; SP–Upper div or grad student) Topics vary each semester.

IE 5511. Human Factors and Work Analysis. (4 cr; QP–Upper div IT or grad student or public health major; SP–Upper div IT or grad student; A-F only) 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 and motion studies.

IE 5512. Applied Ergonomics. (4 cr; QP–IEOR 5010 or IEOR 5070; SP–Upper div IT or grad student; 5511; A-F only) Small groups of students work on practical ergonomic problems in local industrial firms. Projects cover a variety of ergonomic issues: workstation design, equipment and tool design, back injuries and material handling, cumulative trauma disorders, illumination and noise, and safety.

IE 5513. Engineering Safety. (4 cr; QP–IT or grad student; SP–Upper div IT or grad student; A-F only) 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.

IE 5522. Quality Engineering and Reliability. (4 cr; QP–IT or grad student; SP– [4521 or equiv]; Upper div or grad student; A-F only) Quality engineering/management, economics of quality, statistical process control design of experiments, reliability, maintainability, availability.

IE 5531. Engineering Optimization. (4 cr; QP– Math 1251, IT or grad student; SP–Upper div or grad student or CNR) 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/sloths, scheduling, production planning.

IE 5541. Project Management. (4 cr; QP–IT or grad student; SP–Upper div or grad student) Project screening/selection, multiple-criteria methods for project evaluation, project structuring/work breakdown, project teams, project scheduling, resource management, lifecycle costing, project control, project termination, research/development projects, computer support for project management.

IE 5551. Production Planning and Control. (4 cr; QP–IT or grad student; IEOR 5040, ME 3900; SP–Upper div or grad student or CNR) Inventory control, supply chain management, demand forecasting, aggregate planning, capacity planning, material requirement planning, just-in-time manufacturing, cellular manufacturing, production scheduling, line balancing, shop floor control.

IE 5552. Design and Analysis of Manufacturing Systems. (4 cr; QP–IT or grad student; IEOR 5010, IEOR 5020, IEOR 5030, IEOR 5040; SP–Upper div or grad student) Flow lines, assembly systems, cellular manufacturing systems, and flexible manufacturing systems. Emphasis is on methodologies for modeling, analysis and optimization. Lead time analysis, capacity and workload allocation, scheduling and shop floor control, work-in-process management, facilities planning and layout, and information management.

IE 5553. Simulation of Manufacturing Systems. (4 cr; QP–IT or grad student; SP–Upper div or grad student or CNR) Discrete event simulation. Using integrated simulation/environment animation to create, analyze, and evaluate realistic models for various manufacturing, assembly, and material handling systems. Experience for simulation. Random number generation, selecting input distributions, evaluating simulation output.

IE 5554. Facility Planning. (4 cr; QP–IT or grad student; SP–Upper div or grad student or CNR) Design planning of transmission facilities and equipment. Warehousing/storage, facility layout/location, material handling, material transportation distribution.

Information and Decision Sciences (IDSc)

IDSc 3001. Information Systems for Business Processes and Management. (2 cr; QP–BA 1001 or experience using Windows and Internet; SP–BA 1001 or experience using Windows and Internet; A-F only) Developing and using IS to support business processes, management and decision making. Technology components of IS: impact on organizations; creation and change processes; selected managerial issues; techniques for designing, developing, implementing systems; databases and user interfaces; computer and communications network platforms.


IDSc 3201. Information Systems Application Development. (4 cr; QP–3030, MIS major; SP–3001, MIS major; A-F only) User interface design and development, database design and querying, operating environments. Introduction to programming and program design. Hands-on experience with selected application system development tools. Follows the systems development experience from design and construction through testing and deployment.

IDSc 3202. Analytical Skills for Business Application Development. (4 cr; QP–3201, 3030; SP–3201, 3001; A-F only) Concepts and methods for business process engineering and systems analysis; techniques, activities, and issues for management and control of systems development at the project level; skill development for traditional work as well as emerging opportunities. Standard computer languages, comprehensive DBMS facilities, and O-O DBMS; analysis and data mining tools; deploying and managing databases in a distributed environment. Data integrity, security, and privacy.

IDSc 4102. Introduction to Information Systems Analysis. (3 cr; QP–3030; SP–3001; A-F only) Life cycle for development of an information system application. Standards, tools, and techniques required in analysis of information requirements and in logical information system designs. Processing alternative approaches to systems design.

IDSc 4103. Database Design, Manipulation, and Management. (3 cr; QP–3030; SP–3001; A-F only) Use of computer technology and software to represent, manipulate, and manage data. Facilities for ad hoc interactive use and system development. Principles and techniques of logical database design. Introduction to physical representation and storage of data. DBMS tools to manage data and high-level languages to retrieve and manipulate data.

IDSc 4131. Advanced Database Design and Administration. (3 cr; SP–4103; A-F only) Role, organization, functions, and tools of data administration. Data sharing and data integration. CDM projects to manage data and high-level languages to retrieve and manipulate data.

IDSc 4311. Data Communications and Networking. (3 cr; QP–4350; SP–4451; A-F only) Structure of local and wide-area data communications networks. LAN architecture, protocols, and devices. WAN interconnections via frame relay and ATM. LAN operational support: protocols and device structure and operations. The Internet and intranets. Network administration issues. EDI and electronic commerce and security.
Course Descriptions

IDSc 4490. Information Systems Special Topics. (2 cr; QP–3130/3140; SP–3202; A-F only)
Discussion and analysis of current topics and developments in information systems.

IDSc 4491. Independent Study in Information Systems. (1-4 cr; QP–#; SP–#; A-F only)
Learning by working in IS activities and receiving appropriate training from a sponsoring organization. Custom designed to meet pre-established learning objectives. “Work practice” plan required and must be approved by the organization and the director of IDSc undergraduate studies.

Insurance (Ins)

Industrial Relations Center

Curtis L. Carlson School of Management

Ins 5100. Corporate Risk Management. (2 cr) 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 5101. Employee Benefits. (2 cr; SP–5100 or HRR 5301; A-F only)
Design/administration of employee benefit plans and pension programs: health insurance, disability plans, salary reduction/deferred compensation programs—from social insurance to executive benefits. Multiple employer trusts. Alternative funding methods, including self-insurance. Ethical issues, legal liability, compliance with regulations.

Ins 5200. Insurance Theory and Practice. (2 cr) 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.

Ins 5201. Personal Financial Management. (2 cr; SP–5200)

ID 3301. Introduction to Marxism. (3 cr) Marxist philosophy as a worldview and methodology for study of processes in society, and thought; linkage between technological development and evolution of class-divided societies; economic theory of capitalism and socialism; transition to socialism theory and practice; racism, sexism, homophobia, and national conflicts; aesthetics.

ID 3311. Museum Exhibits: From Initial Vision to Practical Implementation. (2 cr; SP–#)
Introduces students to museum exhibit development culminating in the students designing a science exhibit. Study content research, educational strategies of informal science education, design, production stages, marketing, and evaluation. Multidisciplinary involving teachers in graphic art, biology, communication, marketing, science education, and others.

ID 3321. AIDS/HIV: Ethical Issues. (3 cr) Multidisciplinary examination of AIDS/HIV in cultural context. Ethical issues in educational, medical, and political responses to AIDS. Community resources available to people with HIV. Local debates about who gets what services. Required group service project in the community.

ID 3395. OMSA: Pre-Law Program. (4 cr; QP–#; SP–#; A-F only)
Non published course. OMSAA program for selected students to participate in a law school exchange program with William Mitchell Law School.

ID 3501. Community, Service, and Self: Dynamics of Gender, Race, and Class. (2 cr; QP–#; SP–#) First half of a year-long course designed to complement students’ volunteer experience in local communities. Examine community development and “community service” theory across cultures while applying them to direct service experience. Students volunteer 2-3 hours per week.

ID 3502. Community, Service, and Self: Dynamics of Gender, Race, and Class. (2 cr; QP–#; SP–#) Second half of a year-long course designed to complement students’ volunteer experience in local communities. Examine community development and “community service” theory across cultures while applying them to direct service experience. Students volunteer 2-3 hours per week.

ID 3551. Metro Internship Seminar: Corporate Social Responsibility and Ethical Leadership. (6 cr; QP–#; SP–#)
Cross disciplinary course combining theoretical work with a ten-week internship in a local corporation. Focus is on ethics, leadership, organizational change, and strategies for bringing about social change.

ID 3571. HECUA Off-Campus Study Program: Metro Urban Studies Term Reading Seminar. (4 cr; QP–#; contact OSLO, 345 Fraser Hall, 626 2044; SP–#; contact OSLO, 345 Fraser Hall, 626 2044)
Active learning off-campus program that explores roots/strategies for addressing urban inequality/poverty. Interdisciplinary field study, seminar work, internship.

ID 3572. HECUA Off-Campus Study Program: Metro Urban Studies Term Field Seminar. (4 cr; QP–#; contact OSLO, 345 Fraser Hall, 626 2044; SP–#; contact OSLO, 345 Fraser Hall, 626 2044)
Active learning off-campus program that explores roots/strategies for addressing urban inequality/poverty. Interdisciplinary field study, seminar work, internship.

ID 3573. HECUA Off-Campus Study Program: Metro Urban Studies Term Internship Seminar. (8 cr; QP–#; contact OSLO, 345 Fraser Hall, 626 2044; SP–#; contact OSLO, 345 Fraser Hall, 626 2044)
Active learning off-campus program that explores roots/strategies for addressing urban inequality/poverty. Interdisciplinary field study, seminar work, internship.

ID 3581. HECUA Off-Campus Study Program: City Arts Reading Seminar. (4 cr; QP–#; contact OSLO in 345 Fraser Hall, 626 2044; SP–#; contact OSLO in 345 Fraser Hall, 626 2044)
Arts, popular culture, social change. Interdisciplinary field study, seminar work, internship. Offered each spring semester.
Interdisciplinary Archeological Studies (InAr)

**College of Liberal Arts**

**InAr 5100. Topics in Interdisciplinary Archeological Studies.** (3 cr; SP–InAr grad major or # A–F only)
Topics specified in the Class Schedule.

**Italian (Ital)**

**Department of French and Italian**

**College of Liberal Arts**

**Ital 0001. Reading Italian in the Arts and Sciences.** (0 cr)
Designed to teach a basic reading knowledge of the Italian language; full time is devoted to intensive reading and translation of texts from a wide variety of disciplines and to the teaching of translation techniques.

**Ital 1001. Beginning Italian.** (4 cr)
Emphasis on the four language skills (listening, speaking, writing, and reading) and on Italian culture.

**Ital 1002. Beginning Italian.** (4 cr)
Emphasis on the four language skills (listening, speaking, writing, and reading) and on Italian culture.

**Ital 1003. Intermediate Italian.** (4 cr; SP–1001-1002)
Grammar review and development of intermediate level of proficiency in listening, reading, writing and speaking. Emphasis on some cultural aspects of contemporary Italy.

**Ital 1004. Intermediate Italian.** (4 cr; SP–1101-1102)
Grammar review and development of intermediate level of proficiency in listening, reading, writing, and speaking. Emphasis on some cultural aspects of contemporary Italy.

**Ital 1737. Friends and Countrymen.** (3 cr)
Study of the problematic relation between friendship and citizenship as formulated by Dante in the “Inferno” and as we may interpret it in analyzing today’s civic issues. Attention to Dante’s reliance on and implicit critique of Aristotle’s “Nicomechean Ethics.” Taught in English.

**Ital 3015. Reading, Conversation, and Composition.** (4 cr; SP–1104)
Intensive reading, writing, and speaking practice and study of cultural materials in authentic formats.

**Ital 3201. Reading Italian Texts: Poetics, Rhetoric, Theory.** (3 cr; SP–3015)
A basic course understanding the rhetorical and poetic aspects of language and literature; interpretive methods and theoretical concepts.

**Ital 3203. Italian Travelers: From the Enlightenment to the Present.** (3 cr; SP–3015)
Examines literary representations of travel, migration, immaginazione, exile, and tourism in Italy from the Enlightenment to the present.

**Ital 3209. Literature of Medieval City-States.** (4 cr; SP–3015)
The beginnings of Italian vernacular literature in the context of the city-states of the 11th to 14th centuries.

**Ital 3219. Literature of the Despotisms.** (4 cr; SP–3015)
Prose, verse, and drama of Italy under the Signorine and foreign invaders, 1400-1650.

**Ital 3301. Italian Dialects and Their Literature.** (4 cr; SP–3015)
Study of selected Italian dialects and dialect texts in their cultural and historical settings.

**Ital 3305. Staging the Self: Theater and Drama in Modern Italy.** (4 cr; SP–3015)
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 Cittàmenestra.

**Ital 3501. The World in the City: Italy 1100-1660.** (3 cr; SP–3015)
The culture and civilization of Italian cities in medieval and early modern periods.

**Ital 3502. Making of Modern Italy: From the Enlightenment to the Present.** (3 cr; SP–3015)
Italian literary, cultural, and symbolic practices from the Enlightenment to the present.

**Ital 3806. Negotiating the Terms: Italian Film and Literature.** (3 cr)
Examines cinematic representations of Italian literary texts; introduces the basic tools of literary and film analysis; discusses how both media impact Italian culture. Taught in English.

**Ital 4303. Drama and Spectacle in Italy, 1200-1770.** (4 cr; SP–3015)
Italian drama, festival and spectacle from the medieval sacred plays to the reform of the theater by Goldoni.

**Ital 4307. Novellistica.** (3 cr; SP–3201, or permission of DUS)
Study of birth and development of the novella genre. Reading and discussion of stories form the Novellino, Boccaccio, Sacchetti, Bandello, Bigolini, Basile, Verga, Deledda, Calvino, Introduction to formal study of novella structure.

**Ital 4970. Directed Readings.** (1-4 cr; SP–#)
Meets unique requirements decided on by faculty member and student. Individual contracts list contact hours, number of credits, written and other work required.

**Ital 5209. The Narrow Door: Women Writers and Feminist Practices in Italian Literature and Culture.** (4 cr; SP–3021 or #)
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 5321. Italian Renaissance Epic.** (4 cr; SP–3015, 3201 or #)
Study of the narrative poems of Boiardo, Ariosto, and Tasso in the context of the fashioning of early modern Europe.

**Ital 5327. Nation and Narration: Writings in the 19th Century.** (4 cr; SP–3015)
Introduces the construction of modern Italian national identity by examining the role of literature plays in this process. Works by Manzoni, Foscolo, Leopardi, Gioia, Verga, Serao, and Deledda studied in the context of a range of sociopolitical and cultural issues.

**Ital 5401. Mondo di Dante.** (4 cr; SP–3015, 3201 or #)
Intensive reading of Dante’s Inferno, Purgatorio, and Vita Nuova with emphasis on Dante’s linguistic and cultural contributions.

**Ital 5609. World of Dante.** (4 cr [max 8 cr])
Taught in English. Intensive reading of Dante’s Inferno, Purgatorio, and Vita Nuova with emphasis on the personal, poetic, and political stakes of the journey of Dante’s pilgrim through hell to the earthly paradise.

**Ital 5970. Directed Readings.** (1-4 cr; SP–#)
Meets unique requirements decided on by faculty member and student. Individual contracts list contact hours, number of credits, written and other work required.

**Japanese (Jpn)**

**Institute of Linguistics and Asian and Slavic Languages and Literatures**

**College of Liberal Arts**

**Jpn 1011. Beginning Japanese.** (5 cr)
An introduction to speaking, reading, and writing Japanese.

**Jpn 1012. Beginning Japanese.** (5 cr; SP–1011)
Introduction to speaking, reading, and writing Japanese.

**Jpn 3001. Japanese Calligraphy and Appreciation I.** (2 cr; SP–1011)
Basic tools (e.g., brush, sumi ink stick, rice paper). Practice in basic brush strokes. Different characters or hiragana in expressions that are appropriate for the season or that have cultural significance. Taught entirely in Japanese.

**Jpn 3002. Japanese Calligraphy and Appreciation II.** (2 cr; SP–1012 or #)
Tools used in Japanese calligraphy (e.g., brush, sumi ink stick, rice paper). Basic brush strokes. Talk about appreciation of calligraphy. Different characters or hiragana in expressions that are appropriate for the season or that have cultural significance. One-to-one feedback on practice calligraphy. Taught entirely in Japanese.

**Jpn 3021. Intermediate Japanese.** (5 cr; SP–1012 or #)
Intermediate speaking, reading, and writing in Japanese.

**Jpn 3022. Intermediate Japanese.** (5 cr; SP–3021 or #)

**Jpn 3031. Third-Year Japanese.** (4 cr; SP–3022 or #)

**Jpn 3032. Third-Year Japanese.** (4 cr; SP–3031 or #)

**Jpn 3090H. Honors Course/Tutorial.** (1-4 cr)
Tutorial.

**Jpn 3162. Traditional Japanese Literature in Translation.** (3 cr; SP–No knowledge of Japanese necessary)
Survey of texts in different genres from the 8th to the early 19th centuries, with attention to issues such as “national” identity, gender and sexuality, authorship, and popular culture.

**Jpn 3163. Early Modern Japanese Literature in Translation.** (3 cr)
Survey of the principal authors and genres of the period spanning Japan’s opening to the West (1680s) to World War II. Writers include Natsume Soseki, Shiga Naoya, Kawai Kenji, and Tatsuzo Hidai.

**Jpn 3164. Postwar Japanese Literature in Translation.** (3 cr; SP–Basic knowledge of modern Japanese history helpful; knowledge of Japanese language not required)
Survey of the ideas and styles of recent Japanese literature. Writers include Dazai Osamu, Itoh Hisashi, Ke Kenzaburo, Murota Yukiko, and Yoshimoto Banana. All readings in English translation.

**Jpn 3165. Japanese Performance Arts.** (3 cr)
Japanese performance traditions with emphasis on Noh, Kabuki, and Bunraku in their literary and cultural contexts. The relationship between these traditions and the evolution of avant-garde performance practices.
Jpn 3166. Japanese Film. (3 cr) Themes, stylistics, and genres of Japanese cinema through the work of key directors (Kurosawa, Mizoguchi, and Ozu) and more recent filmmakers (Iimura and Moriga). Particular attention to representations of femininity and masculinity.


Jpn 3451. Introduction to Japanese Linguistics. (3 cr; SP–3022 or #) Analysis of structure and meaning of Japanese sentence patterns.

Jpn 3993. Directed Studies. (1-15 cr [max 15 cr]; SP–#, , A-F only) Directed study in topics of Japanese literature or linguistics.

Jpn 4041. Advanced Japanese Conversation and Composition. (4 cr; SP–3032 or #) Practice in advanced spoken and written Japanese. Typical assignments include essays, summaries, and formal interviews in Japanese.

Jpn 4042. Advanced Japanese Conversation and Composition. (4 cr; SP–4041 or #) Practice in advanced spoken and written Japanese. Typical assignments include essays, summaries, and formal interviews in Japanese.


Jpn 4062. Classical Japanese. (4 cr; SP–4061 or #) Analysis of the structures and arguments of classical Japanese poetry, narrative, and drama.

Jpn 5071. Communicative Competence for Japan-Oriented Careers. (4 cr; SP–4041 or 4042 or #) Effective communication using spoken and written Japanese in contexts likely to be encountered by a career-oriented professional in Japan.

Jpn 5072. Communicative Competence for Japan-Oriented Careers. (4 cr; SP–#5071 or #) Effective communication using spoken and written Japanese in contexts likely to be encountered by a career-oriented professional in Japan.

Jpn 5160. Topics in Japanese Literature. (4 cr [max 8 cr]) Literary, historical, or cultural study of selected Japanese literature.

Jpn 5161. Women’s Writing in Premodern Japan. (4 cr; SP–3162, 4061 or #) Literary and historical exploration of selected works by Japanese women writers in a variety of genres. All literary texts read in Japanese; critical readings may be in English.

Jpn 5171. Women’s Writing in Premodern Japan in Translation. (4 cr; SP–3162 or #; A-F only) Genji monogatari, a lengthy narrative, Makura no soshu, a collection of vignettes, and poetry. Gendered writing system/authorship, narrative techniques, sexuality and the figure of the author, and strategies of fictionality.

Jpn 5176. Literature by 20th-Century Japanese Women. (4 cr; SP–3032 or #) Literary and historical exploration of selected works by Japanese women writers in a variety of genres. All literary texts read in English.

Jpn 5251. History of the Japanese Language. (4 cr; SP–3032, 5451 or #) Development of Japanese grammar from classical to the modern language.


Jpn 5452. Structure of Japanese: Phonology/Morphology. (4 cr; SP–3032, Ling 3001 or #) Generative and nongenerative approaches to Japanese sound and word structure.

Jpn 5453. Structure of Japanese: Discourse/Conversation Analysis. (4 cr; SP–3032, Ling 3001 or #) Emergence of grammar in discourse, discourse/conversational structural units, patterns genre, strategies, style, and sociolinguistics variables.

Jpn 5630. Proseminar: Japanese Linguistics. (4 cr [max 12 cr]; SP–5452 or 5453 or #) Selected topics in Japanese linguistics and/or contrastive analysis of Japanese and English with attention to contributions from Eastern and Western linguistic traditions.


Jewish Studies (JWst)

Department of Classical and Near Eastern Studies

College of Liberal Arts

JWst 3034. Introduction to Judaism. (3 cr; SP–§1034, §RelA 1034, §RelA 3034; no knowledge of Hebrew required) Survey of intellectual history, literature, beliefs, practices, values, laws, national, and cultural developments from the rabbinic period through today. Ancient and modern sources used to study Judaism. Combines Western critical methodologies with the Jewish traditions of learning.

JWst 3113. African American and Jewish American Relations in the United States. (3 cr) Historical and social scientific study of relations between African Americans and Jewish Americans in the U.S. during the 20th century. Includes immigration, work, cultures, gender, and alliance, and conflict.

JWst 3115. Mishnah and Midrash in Translation. (3 cr; SP–RelA 3115) Jewish law studied as a mirror of society and as a way to actualize its value. Consideration of original socio-religious contexts and current applications. Solutions include biblical interpretations addressing moral, theological, legal, and literary problems.


JWst 3401. The Art and Architecture of the Jewish People. (3 cr) Jewish art and architecture from antiquity to 7th-century C.E. Issues include Jewish art and the Second Commandment, non-Jewish artistic traditions, the nature of Jewish art.


JWst 3522. History of the Arab-Israeli Conflict. (3 cr) The events leading to the re-establishment of the State of Israel in 1948 and subsequent conflicts and negotiations up to present. Zionism and Arab resistance, Great Powers’ involvement, War of Independence/First Palestine War, subsequent conflicts and their aftermath.

JWst 3631. Jewish Writers and Rebels in German, Austrian, and American Culture. (3 cr) Investigate literary and 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.

JWst 3632W. Jewish Women in the United States. (3 cr) Analyze of the cultural, social, economic, and religious conditions of European Jewish and American society in the 19th- and 20th-centuries that structured the lives of American Jewish women.

JWst 3900. Topics in Jewish Studies. (3 cr [max 12 cr] SP–#) Historical, religious, sociological, anthropological, and humanistic study of Judaism and the Jewish people. Approach and method of study varies with topic.

JWst 3951. Major Project. (4 cr; SP–JWst major, three 3xxx JWst courses or #) Research project using primary and secondary sources. Students select project in consultation with a faculty member who directs the research and writing.
Journalism and Mass Communication (Jour)

School of Journalism and Mass Communication
College of Liberal Arts

Jour 1001. Introduction to Mass Communication. (3 cr; SP–Open to non-jour majors; A-F only)
Nature, functions, and responsibilities of communication media and agencies from professional point of view. News, opinion, entertainment, and persuasion functions, trends, communication tools, societal effects.

Jour 3004W. Information for Mass Communication. (3 cr; SP–Engr 1011 or equiv or exemption, jour major or jour minor or IDIM major or ICP major or BIS major; A-F only)
Information resources for professional/academic work in mass communication. Techniques for locating, retrieving, appraising, and verifying information acquired from public records, libraries, research institutions, databases, observation, and interviews.

Jour 3006. Visual Communication. (3 cr; OP–3004, jour major or jour minor or IDIM major or ICP major or BIS major or jour minor; A-F only)
Visual media, role of images in mass communication. Social, cultural, historical, psychological approaches to visual communication. Hands-on exercises for image making processes.

Jour 3037. The Media in American History and Law: Case Studies. (3 cr; OP–Jour major or minor, OP–3004, jour major or jour minor or English major or design comm premajor or design comm major or graphic design premajor or graphic design major or IDIM major or ICP major or BIS major or jour minor; A-F only)
Visual media, role of images in mass communication. Social, cultural, historical, psychological approaches to visual communication. Hands-on exercises for image making processes.

Jour 3101. Newswriting and Reporting. (4 cr; OP–3004, 3011, 40 wpm keyboard test; jour major or jour minor or IDIM major or ICP major or BIS major; typing skill; A-F only)
Fact gathering, journalistic writing. Problems in judgment/_handling of news/news features.

Jour 3121. Public Affairs Reporting. (3 cr; SP–3004, 3101 with grade of at least C, jour major or IDIM major or ICP major or BIS major; typing skills; A-F only)
Reporting/editing news of courts and municipal, county, state, and federal administrative/legislative agencies.
Course Descriptions

Jour 4261. Advertising / Media Analysis. (3 cr; SP- 3004, [3159 or 3201], [jour major or mkgt major or IDIM major or ICP major or BIS major or jour minor or IDIM major or jour minor or mkgt major or IDIM major or BIS major]; A-F only)
Print/electronic media and their role in advertising. Selection/scheduling, rate structures/policies, evaluation/use of media/market measurements/data.

Jour 4263. Advertising Campaign Planning. (3 cr; SP- [3179 or 3241 or 4159 or 4261], [jour major or not for jour major or IDIM major or ICP major or BIS major or jour minor or IDIM major or IDIM major or BIS major]; A-F only)
Developing campaign strategy/tactics. Emphasizes planning/decision-making skills.

Jour 4274. Advertising in Society. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)
Economic, social, and cultural influences of advertising. Forms of regulation: self-regulation and governmental. Critique of advertising’s role in society. Explorations of current issues (e.g., stereotyping, political advertising, advertising to children). Ethics in advertising.

Jour 4321. Publication Graphics. (3 cr; SP- 3004, 3321, [jour major or IDIM major or ICP major or BIS major]; A-F only)
Design process applied to production of magazines, brochures, newsletters. Computer as tool to prepare electronic documents for printing.

Jour 4441. Documentary Production. (3 cr; SP- [4442, [jour major or IDIM major or ICP major or BIS major]; [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)
Types of “long form” news, reality-based production for cinema/TV. Preparing broadcast-quality documentary using non-linear editing techniques. Students work in teams. Lecture/lab.

Jour 4442. Advanced Television News. (3 cr; SP- 3004, 3451, [jour major or IDIM or ICP or BIS] major, typing skill; A-F only)

Jour 4611. Development of American Broadcasting. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)

Jour 4615. History of Visual Communication in Mass Media. (3 cr; SP- 3004, [jour major or jour minor or grad major or PubH major or IDIM major or ICP major or BIS major or jour minor]; A,F only)
Social history of photography, film, video. Informational, documentary, propaganda, and entertainment functions of visual communication. Rise/influence of visual media industries and of public-image making.

Jour 4721. Mass Media and U. Society. (3 cr; SP- [3004, [jour major or jour minor or English major or IDIM major or ICP major or BIS major or jour minor]; [one writing-intensive course recommended]; A-F only)

Jour 4731H. Honors: Communications Problems and Issues. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major or jour minor or IDIM major or IDIM major or IDIM major or BIS major]; honors, A-F only)
Individual project. Seminar.

Jour 4801. International Communication. (3 cr; SP- [3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)
Structures, processes, consequences of international mass communication. Problems in free flow of information. Roles of international organizations. Mass communication in social, political, economic development. Implications for conflict resolution.

Jour 4993H. Honors: Directed Study. (1-3 cr; max 6 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; GPA of at least 3.0, honors div regia, A-F only)
Independent study/projects.

Jour 5251. Psychology of Advertising. (3 cr; SP- 3004, Psy 1001, [jour major or jour minor or design comm program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour major or grad major or design program or jour minor or IDIM major or IDIM major or BIS major]; A-F only)
Psychological principles, research techniques, and applications in advertising/selling. Consumer attitudes/behavior. Psychological mechanisms upon which effectiveness of advertisements/commercials depends.

Jour 5315. Theories of Visual Communication. (3 cr; SP- 3004, 3006, [jour major or jour minor or IDIM major or ICP major or BIS major]; or A-F only)
Perspectives on study/analysis of visual communication. Message structure, systems of production, use and analysis. Contributions from sociology, anthropology, psychology, and history.

Jour 5501. Communication and Public Opinion. (3 cr; SP- Open to non-jour majors; jour major must have course appr on prog plan; pre-jour major should not enroll; A-F only)
Theories of communication, persuasion, attitude change. Functions of interpersonal/mediated communication in diffusion of information and in opinion formation.

Jour 5531. Communication and Public Opinion II. (3 cr; [jour major or jour minor or IDIM major or IDIM major or BIS major]; A-F only)
Advanced study of theories/research on opinion formation, persuasion, and diffusion of information. Social science contributions to studies of process/effects of mass communication.

Jour 5541. Mass Communication and Public Health. (2-3 cr; SP- 3004, [jour major or jour minor or grad major or PubH major or IDIM major or ICP major or BIS major or jour minor]; 12 cr in social or behavioral sci; A-F only)
Role, function, effect of mass media on public health. Planned/unplanned effects. Review/analysis of literature on how theories, models, assumptions of mass communication research relate to public health.

Jour 5601W. History of Journalism. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)
Development of American newspapers/periodicals from beginnings in Europe to present day. Rise of radio/television. Relation of communications development to political, economic, social trends.

Jour 5606W. Literary Aspects of Journalism. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)
Literary aspects of journalism as exemplified in, and influenced by, works of English/American writers past/present. Lectures, discussions, weekly papers.

Jour 5725. Management of Media Organizations. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or IDIM major or BIS major]; A-F only)

Jour 5726. Case Studies in Modern Media Management. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or IDIM major or BIS major]; A,F only)

Jour 5741. Minorities and Mass Media. (3 cr; OP- 3004, [jour major or jour minor or IDIM major or IDIM major or BIS major]; A-F only)
Analysis of relationships between mass media and communities of color in the United States. Focuses on issues of content/control.

Jour 5771. Media Ethics: Principles and Practice. (3 cr; SP- Open to non-jour majors; jour major must have course appr on prog plan; pre-jour major should not enroll; A-F only)
What it means to act "ethically." Tools to identify/analyze ethical issues. Ethical norms of print/broadcast journalism, photojournalism, public relations, and advertising.

Jour 5777. Contemporary Problems in Freedom of Speech and Press. (3 cr; SP- 3004, [jour major or jour minor or IDIM major or IDIM major or BIS major]; A-F only)
Legal/constitutional derivation of freedom of speech/press. Emphasizes case law, judicial theories, doctrines, tests, and values. Symbolic, commercial, compelled speech, speech plus, petition/assembly, leading press cases, legal research techniques.

Jour 5825. World Communication Systems. (3 cr; SP- 3004, [jour major or jour minor or IntR major or IDIM major or ICP major or BIS major]; A-F only)
Mass media systems of world, described/analyzed regionally/nationally. Historical roots. Social, economic, cultural context. Contemporary conditions/products. Relevance of journalism/mass communication to international affairs.

Jour 5990. Special Topics in Mass Communication. (3-4 cr; SP- [jour major or jour minor or IDIM major or ICP major or BIS major]; A-F only)
Topics specified in Class Schedule.

Jour 5993. Directed Study. (1-3 cr; SP- 3004, [jour major or jour minor or IDIM major or ICP major or BIS major]; GPA of at least 3.0, [jour major or jour minor]; A-F, A-F only)
Directed study/projects.

Kinesiology (Kin)

School of Kinesiology and Leisure Studies
College of Education and Human Development

Kin 1050. Beginning Military Physical Fitness Training. (1 cr; max 4 cr; A-F only)
The Army’s model of physical fitness training is used to address five aspects of fitness in the context of running, weight training, strength exercise, circuit training, and team sport activities. Students are organized into groups of similar fitness levels.

Kin 1375. Play Behavior. (3 cr)
Overview of play behavior across species, cultures, social settings. Relationship of play between physical/psychological development, role of sports/games in play, design of toy/splay.

Kin 1871. Introduction to Kinesiology. (2 cr; A-F only)
Examination of the professional and disciplinary dimensions of physical activity. Representative experiences include lecture, discussion, small group activities, and laboratory tours.

Kin 1899. Health and Society. (3 cr; SP- [5199]; A-F only)
Major factors influencing human health, including behavior, the physical and social environments, policy, and economics. Opportunities for citizen participation in addressing each factor are explored, focusing on health topics such as nutrition and violence.

Kin 1993. Directed Study in Kinesiology. (1-6 cr; OP-; SP-; A,F-A only)
For lower division students planning to major in kinesiology who wish to study a topic or problem under tutorial guidance.

Kin 3001. Lifetime Fitness and Health. (3 cr; A-F only)
Overview of fitness/s health as function of disease risk nutrition, stress management, weight control, exercise, illicit drugs, nutraceuticals, and well-being. Base of action/knowledge needed for surviving school, maximizing performance, and living a healthy life.

Kin 3027. Human Anatomy for Kinesiology Students. (3 cr; A-F only)
Introduction to human anatomy. Emphasizes musculoskeletal anatomy germane to athletic training, biomechanics, exercise physiology, motor learning/development.
Kin 3050. Advanced Military Physical Fitness Training. (1 cr; max 4 cr; SP–4 cr of 1050 or A-F only) Students train as leaders in implementing Army’s model of physical fitness training. Model addresses five aspects of fitness in the context of running, weight training, strength exercise, circuit training, and team sport activities.

Kin 3111. Human Anatomy. (2 cr; SP–§3110; A-F only) Beginning anatomy course for nonkinesiology students pursuing coaching licensure or for nonprofessional students interested in an exercise science approach to anatomy. Focus on a regional approach to muscle, nerve, and circulatory anatomy of the limbs and trunk and a systematic anatomy approach for circulation, respiratory, digestive, urinary, and nervous systems. Students are encouraged to voluntarily employ demonstration of human cadaver dissections.

Kin 3112. Introduction to Biomechanics. (3 cr; QP–[3111 or CBN 1027]; CEHD student or #; SP–[3111 or CBN 1027].Phys 110W, CEHD student or #; A-F only) Mechanical principles applied to human movement. Analytical methods of examining human motion. Quantitative/qualitative approaches.


Kin 3114. Prevention and Care of Athletic Injuries. (3 cr; QP; [3110, CBN 1027, CEHD student] or #; SP–[3111 or CBN 1027], CEHD student or #; A-F only) Principles in athletic training for prevention/care of injury. Taping/bracing techniques. Lab.

Kin 3126. Psychology and Sociology of Sport. (3 cr; SP–Kin major; A-F only) Introduction to sport psychology and sport sociology. Topics include factors related to individual and institutional behavior in the following physical activity settings: competitive and recreational athletics, exercise, physical education, and rehabilitative.

Kin 3131. History and Philosophy of Sport. (3 cr; max 3 cr; QP–Kin majors or # SP–Kin majors or # A-F only) Introductory description and interpretation of the historical and philosophical development of physical education and sport from primitive societies to 20th century civilization.

Kin 3133. Motor Control, Learning, and Development. (3 cr; SP–Kin major or #; SP–Kin major or #; A-F only) Concepts and principles of the coordination and control of learning of movement skills and the changes in movement performance and physical growth across the life span.

Kin 3143. Organization and Management of Sport. (3 cr; QP–2-credit coaching course; Kin major or # SP–Kin major or # A-F only) Principles, policies, and procedures involved in the administration and management of sports programs at the interscholastic and intercollegiate levels.

Kin 3151. Measurement, Evaluation, and Research in Kinesiology. (3 cr; QP–Kin major or #; SP–Kin major or # 3315; A-F only) Introduction to the philosophy of evaluation and measurement in physical education and exercise science. Test selection, construction, evaluation, and administration. Basic research methods, statistical analysis, and interpretation of test scores.

Kin 3168. Soccer Coaching. (1 cr; QP–PE 1872; SP–Kin 3371) Fundamental approaches used in the science of coaching soccer. Emphasis on teaching and coaching of technique, team organization and management, development of training schedules, and rules and strategies related to the game.

Kin 3169. Volleyball Coaching. (1 cr; QP–PE 1174 or #; SP–Good understanding of volleyball) Motivation, team building, communication, game strategies, philosophy. Lecture, discussion, practical application.

Kin 3171. Baseball Coaching. (1 cr [max 1 cr; SP–Kin 3170) Safety, rules, team building, game strategies, and philosophy. Students should have a good understanding of the sport before enrolling. Lecture, discussion, and practical application.

Kin 3172. Basketball Coaching. (1 cr; SP–§Kin 3171) Teaching and coaching individual and team skills of the game rules, fundamentals of coaches, team management, skill development and analysis, rules, systems of play, psychology, and scouting.

Kin 3174. Golf Coaching. (1 cr) Safety, rules, etiquette, skill development and analysis, and philosophy. Students should have a good understanding of the sport before enrolling. Lecture, discussion, and practical application.

Kin 3175. Gymnastics Coaching. (1 cr; SP–Kin 3174) Coaching gymnastics for males and females. Skill progression, skill analysis and spotting, routine construction, safety, training for competition, scoring and rules, psychology, off-season conditioning, and responsibilities of the coach.

Kin 3176. Ice Hockey Coaching. (1 cr; SP–Kin 3175) Coaching hockey for males and females. Terminology, breaking, penalty killing, power-play, neutral ice play, offensive checking, defensive strategies, comparisons of men’s and women’s techniques.

Kin 3177. Swimming and Diving Coaching. (1 cr; SP–Kin 3176) Swimming coaching for males and females. Stroke mechanics, starts and turns, safety, training for competition, psychology, off-season conditioning, roles and responsibilities of the coach.

Kin 3178. Tennis Coaching. (1 cr; SP–Kin 3177) Coaching strategies, safety and rules, training for competition, off-season training and conditioning, roles and responsibilities of the coach.

Kin 3179. Track and Field Coaching. (1 cr; SP–Kin 3178) Basic training and conditioning programs, event characteristics, coaching strategies, knowledge of track and field, meet administration.

Kin 3181. Wrestling Coaching. (1 cr; SP–Kin 3179) Teaching and coaching of technique, team organization and management, rules interpretation, and development of training schedules.

Kin 3327. Teaching Physical Education in the Elementary School. (2 cr; QP–Elem ed major; SP–Elem ed major; A-F only) Overview of the elementary physical education process with focus on a classroom teacher’s perspective and needs. Representative experiences include participation, lecture, micro-teaching, final test.

Kin 3385. Human Physiology for Kinesiology Students. (3 cr; QP–CBN 1027 or equiv, Kin major or #; SP–CBN 1027 or equiv. Kin major or # A-F only) Tissue and organ function, cell structure, cellular enzymes, energy production, and chemical composition of the body. Nervous, muscular, endocrine, circulatory, renal, respiratory and gastrointestinal physiological control systems studied in detail using clinical, exercise, sport, and work examples.

Kin 3696. Supervised Practical Experience. (1-10 cr; max 10 cr; QP–SP–Kin major or #; # 3626; S-N only) On-the-job supervised practical experience in the fields of sport and recreation, under a specialist in a particular area of study or emphasis.

Kin 3993. Directed Study in Kinesiology. (1-10 cr; max 10 cr; QP–SP–A-F only) Student-selected practical or research experience.
Course Descriptions

Kor 3012. Intermediate Korean. (4 cr; 3-6 cr [max 6 cr]; QP–Grad student or #; SP–Grad student or MEd student in kin or #; A-F only) Speaking, reading, writing at intermediate level in modern colloquial Korean. Introduces Korean writing system.

Kor 3021. Intermediate Korean. (4 cr; QP–1013; SP–1012) Speaking, reading, and writing at intermediate level in modern colloquial Korean. Narration/written reports. Some basic Chinese characters may be introduced.


Kor 3940. Korean Culture and History. (3 cr) Introduction to Korean society/culture. History, material culture, religion, family, kinship, weddings. Lectures, discussions, videos.

Korean (Kor)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

Kor 1011. Beginning Korean. (4 cr) Basic grammatical structure, vocabulary, and expressions of modern colloquial Korean. Introduces Korean writing system.

Kor 1012. Beginning Korean. (4 cr; SP–1011) Basic grammatical structure, vocabulary, and expressions of modern colloquial Korean.

Kor 3021. Intermediate Korean. (4 cr; QP–1013; SP–1012) Speaking, reading, and writing at intermediate level in modern colloquial Korean. Narration/written reports. Some basic Chinese characters may be introduced.


Kor 3940. Korean Culture and History. (3 cr) Introduction to Korean society/culture. History, material culture, religion, family, kinship, weddings. Lectures, discussions, videos.
LA 3001. Environmental Design and Its Biological and Physical Context. (3 cr; A-F only)
Consideration of dynamic relationships between environmentally designed places and their biological and physical contexts. Case studies of successfully integrating created place and biological and physical contexts.

LA 5201. Making Landscape Spaces and Types. (6 cr; SP-BED accelerated status or LA grad or #; A-F only)
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.

LA 5202. Landscape Analysis Workshop. (1 cr; A-F only)
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; SP-BED at 5211, 5212, 5202 or concurrent reg or ecology course or #; SP-BED accelerated status or LA grad or #; A-F only)
A design studio experience drawing on ecological, cultural, and aesthetic influences to explore the development of design ideas that are responsive to ecological issues and human experience.

LA 5301. Introduction to Drawing in Architecture and Landscape Architecture. (3 cr; A-F only)
Basic skills involved in perceiving/representing the material environment. Sketching/drawing conventions, visual phenomena/forms.

LA 5351. AutoCAD I. (3 cr; SP-BED major or LA grad or #; may not be taken for graduate credit; A-F only)
Basic concepts, tools, and techniques of computer-aided drawing. Introduction to current AutoCAD Release software. Strategies and techniques for producing dimensioned and annotated drawings. Introduction to 3-D drawing capabilities. Use of dimension variables, attributes, blocks, symbols, and creation of customized menus.

LA 5352. AutoCAD II. (3 cr; SP-Arch 5351 or LA 5351, B.E.D. major or LA grad or #; may not be taken for graduate credit; A-F only)
Intermediate concepts, tools, and techniques of computer-aided drawing with current AutoCAD Release software. Strategies and techniques for producing dimensioned and annotated drawings. Use of dimension variables, attributes, blocks, symbols, and creation of customized menus.

LA 5371. Computer Methods I. (1 cr; SP-BED accelerated status or LA grad or #; current techniques and computer programs, and their application to landscape architecture computing.

LA 5372. Computer Methods II. (1 cr; SP-Arch/LA 5371, LA grad or #; current techniques and computer programs, and their application to landscape architecture computing.

LA 5373. Computer Methods III. (1 cr; SP-Arch/LA 5372, LA grad or #; Advanced techniques and computer programs, and their application to landscape architecture computing in design, theory, and technology.

LA 5400. Topics in Landscape Architecture. (1-3 cr [max 12 cr]; SP-BED accelerated status or LA grad or #; A-F only)
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. (1-6 cr [max 12 cr]; SP-RSr B.E.D. major or LA grad or #; SP-BED accelerated status or LA grad or #; A-F only)
Independent studies under the direction of landscape architecture faculty.
Latin (Lat)

Department of Classical and Near Eastern Studies
College of Liberal Arts

Lat 1001. Beginning Latin I. (4 cr)
Graduate mastery of Latin structure in order to attain reading knowledge; practice in oral reading and composition.

Lat 1002. Beginning Latin II. (4 cr; SP–1001 or equiv) Continuing work on Latin grammar and syntax; graduated readings from Roman authors including Cicero, Catullus, and Roman comedy.

Lat 1102. Beginning Latin II, Transition. (3.33 cr; OP–1102; A-F only) Continuation of basic grammar/vocabulary, practice reading/writing. Latin readings, Roman legends.

Lat 1103. Selections from Latin Literature, Transition. (3.33 cr; OP–Lat 1102; A-F only) Practice reading/writing. Latin readings, Roman legends.

Lat 1111H. Honors Course: Beginning Latin. (3 cr; SP–1112; regis in honors program or high ability as indicated by high school transcript) Intensive Latin course covering material usually taught over two semesters. Students must also register for 1112 when taking this class.

Lat 1112H. Honors Course: Beginning Latin, Recitation. (3 cr; SP–1111; regis in honors program or high ability as indicated by high school transcript) Drills and composition exercises. Students must also register for 1111 when taking this class.

Lat 3111. Intensive Latin. (3 cr; SP–§1001-1002; §1111, §3112; previous exper in another foreign language desirable) Intensive Latin course covering material usually taught over two semesters. Undergraduates must also register for 3112 when taking this class.

Lat 3112. Intensive Latin, Recitation. (3 cr; SP–§1001-1002, §1112, §3111; previous exper in another foreign language desirable) Drills and composition exercises. Students must also register for 3111 when taking this class.

Lat 3113. Republican Latin Authors. (4 cr; SP–1002 or 1101 or 3 yrs high school Latin or A) Intermediate Latin reading featuring selections from Caesar, Cicero and Catullus. Grammar review; introduction to Latin metrics, history and culture of the late republic.

Lat 3114. Augustan Latin Authors. (4 cr; SP–3113 or A) Students progress from intermediate to advanced Latin reading while surveying the world of Augustus Rome. Authors include Livy, Virgil, and Ovid.

Lat 3310. Advanced Undergraduate Latin: History. (3 cr [max 12 cr]; SP–3134 or equiv or #) Roman history as the Romans wrote it; selections from Livy, Sallust, Tacitus, or Ammianus.

Lat 3320. Advanced Undergraduate Latin: Belles-Lettres. (3 cr [max 12 cr]; SP–3134 or equiv or #) Selections from expository Latin literature (essays, epistles, monographs).

Lat 3330. Advanced Undergraduate Latin: Oratory. (3 cr [max 12 cr]; SP–3134 or equiv or #) One or more appropriate authors studied each semester.

Lat 3340. Advanced Undergraduate Latin: Epic/ Pastoral. (3 cr [max 12 cr]; SP–3114 or equiv or #) One or more appropriate authors studied each semester.

Lat 3350. Advanced Undergraduate Latin: Lyric/ Elegiac. (3 cr [max 12 cr]; SP–3114 or equiv or #) One or more appropriate authors studied each semester.

Lat 3360. Advanced Undergraduate Latin: Drama. (3 cr [max 12 cr]; SP–3114 or equiv or #) One or more appropriate authors studied each semester.

Lat 3370. Advanced Undergraduate Latin: Satire. (3 cr [max 12 cr]; SP–2314 or equiv or #) One or more appropriate authors studied each semester.

Lat 3440. Advanced Undergraduate Latin: Later Latin. (3 cr [max 12 cr]; SP–3114 or A) Reading course covering authors of Late Antiquity, the Middle Ages and the Renaissance. Topics specified in Class Schedule.

Lat 3450. Advanced Undergraduate Latin: Classical Authors. (3 cr [max 12 cr]; SP–3114 or A) Readings from various classical Latin authors. Topics specified in Class Schedule.

Lat 3951. Major Project. (4 cr; SP–Greek-Latin or Latin major, three 3000 Latin courses or #) 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.

Lat 3960H. Honors Course: Advanced Undergraduate Latin Reading. (3 cr [max 12 cr]; SP–Regis in honors program or high ability as indicated by transcript) Student attends Latin 33xx, 3440, or 3450 and does additional work for honors credit.

Lat 3993. Directed Studies. (1-4 cr [max 12 cr]; SP–# and Δ) Guided individual reading or study.

Lat 5012. Latin Prose Composition. (3 cr; SP–3134 or A) Advanced understanding of Latin grammar, syntax, diction, and prose style through graduated exercises in prose composition.

Lat 5032. Text Criticism. (3 cr; SP–3114) Theory and practice. Elements of paleography and manuscript study. Basic tools for analyzing a textual apparatus with some independence; constructing a critical edition of a literary text.

Lat 5310. Latin Literature: History. (3 cr [max 12 cr]) One or more appropriate authors studied each semester.

Lat 5320. Latin Literature: Epistles and Essays. (3 cr [max 12 cr]) One or more appropriate authors studied each semester.

Lat 5330. Latin Literature: Oratory. (3 cr [max 12 cr]) One or more appropriate authors studied each semester.

Lat 5340. Latin Literature: Epic and Pastoral. (3 cr [max 12 cr]) One or more appropriate authors studied each semester.

Lat 5350. Latin Literature: Lyric and Elegiac Poetry. (3 cr [max 12 cr]) One or more appropriate authors studied each semester.

Lat 5360. Latin Literature: Latin Dramatists. (3 cr [max 12 cr]) One or more appropriate authors studied each semester. Authors vary.

Lat 5370. Latin Literature: Satire. (3 cr [max 12 cr]; SP–Grad student or #) One or more authors.

Lat 5380. Latin Literature: Legal Texts. (3 cr [max 12 cr]) One or more appropriate authors studied each semester.

Lat 5390. Literature: Religious Texts. (3 cr [max 12 cr]; SP–3114) Reading and discussion of religious texts from Latin antiquity, such as Varro’s Antiquitates Divineae, Cicero’s De natura deorum, Apuleius’s Metamorphoses, or Christian writers (Tertullian, Cyprian, Lactantius, Jerome, Augustine).

Lat 5410. Latin of Late Antiquity. (3 cr [max 12 cr]; SP–34xx or equiv or #) Pagan and Christian Latin literature selected from authors of the 3rd to 6th centuries AD. Topics specified in Class Schedule.

Lat 5420. Medieval Latin. (3 cr [max 12 cr]; SP–34xx or equivalent or #) Literature from 6th to 15th centuries. Authors and genres vary: topics specified in Class Schedule.

Lat 5621. Latin Paleography. (3 cr; SP–Three 30xx-30xx Latin cr or #) Analysis of various hands used in manuscripts of Latin authors with attention to date and provenance; transmission of ancient Latin literature.

Lat 5715. Introduction to the Historical-Comparative Grammar of Greek and Latin. (3 cr; SP–or δ or 2 yrs college Greek) Historical and comparative grammar of Greek and Latin from their Proto-Indo-European origins to the classical norms.

Lat 5717. History of Latin. (3 cr) Reading and analysis of documents illustrating the stylistic registers and evolution of the Latin language from its earliest attestations through the Middle Ages.

Lat 5993. Directed Studies. (1-4 cr [max 18 cr]; SP–#) Guided individual reading or study.

Lat 5994. Directed Research. (1-12 cr [max 20 cr]; SP–#) Guided research on original topic chosen by student.

Lat 5996. Directed Instruction. (1-12 cr [max 20 cr]; SP–#) Supervised teaching internship.

Latin American Studies (LAS)

Institute of International Studies
College of Liberal Arts

LAS 3017. Peoples and Cultures of Middle America. (3 cr; SP–Anth 3001) Surveys the Indian and Mestizo (Hispanic) cultures of Mexico and Guatemala and parts of Belize, Honduras, and Nicaragua. Describes both pre-Hispanic and Hispanic influences, with attention to area-wide patterns and local traditions.

LAS 3019. Hispanic Cultures of Latin America. (3 cr; SP–Anth 2010/3002 or #) An overview of Hispanic cultures from Mexico to South America covering topics such as economy, underdevelopment, the family and ritual kinship, gender, religion, values, ideology, and change. Several concepts are introduced to explore continuity and change.

LAS 3114. International Perspectives—U.S.-Mexico Border Cultures. (3 cr; SP–Chic 3114) Surveys the relations of Mexico and the United States from an international perspective, with an central focus on the cultural interchange in the border lands between the United States and Mexico, using both literary and historical materials.

LAS 3251. Role of Renewable Natural Resources in Developing Countries. (3 cr; SP–FR 3251; A-F only) International perspectives on important resource issues including integration of natural resource, social, and economic considerations. Overviews of issues and case studies.

LAS 3401W. Early Latin America to 1825. (4 cr; SP–Hist 3401) Native American and colonial periods to 1825, with emphasis on social, cultural, and economic aspects.
LAS 3402W. Modern Latin America: 1825 to Present. 
(4 cr; SP–§Hist 3402) 
National and contemporary period 1825 to present, with emphasis on social, cultural, political, and economic change.

LAS 3405. Latin American Women’s Lives. (3 cr; SP–WoSt 3405; WoSt 1001, WoSt 1002 or WoSt 1003 or #) 
An interdisciplinary approach to understanding women’s lives in Latin America. Use of ethnography, history, poetry, fiction, and “testimonio” to understand the conditions of women’s lives in Latin America.

LAS 3427. History of Cuba and Puerto Rico. (3 cr; SP–§Chic 3427, §Hist 3427) 
Historical development of Cuba and Puerto Rico from pre-Columbian times through Spanish conquest to the present. Conquest and colonization, slavery, Hispanic Caribbean society and culture, Operation Bootstrap, Cuban Revolution.

LAS 3428. History of Relations Between U.S. and Mexico: 1821 to Present. (3 cr; SP–§Chic 3428, §Hist 3428) 
U.S.-Mexico relations in the 19th and 20th centuries. Examines histories as they intersect in the late 1820s through the loss of Texas, the Mexican-American War, and economic relations between the two countries including NAFTA and the Chiaspa rebellion of 1994.

LAS 3441. Chicana/o History to 1900. (3 cr; SP–§Chic 3441, §Hist 3441) 
The history of the Mexican people from the 16th through 19th centuries. Historical theories of colonialism, expansion, economy, assimilation, migration and settlement; race, class and gender, political, social and cultural interaction, and conflict.

LAS 3442. Chicano History to Present. (3 cr; SP–§Chic 3442, §Hist 3442) 
The 20th-century Chicana/o experience: migration, repatriation, the Bracero program, politics, the Chicano/a movement, work, society, and culture.

LAS 3502W. Foundations of Brazilian Culture. (3 cr; SP–§Port 3502; Port 3003 or equiv) 
Emphasis on Brazilian modern society. History, culture (music, art, cinema, literature, intellectual thought, popular culture, media), and social problems (ethnicity, tropical deforestation). Discussions and readings are in Portuguese.

LAS 4121W. Geography of Latin America. (3 cr; SP–§GeoG 4121) 
Interplay of natural environment and history in shaping contemporary Latin America. Political ecology of cities, natural resources, food supply and distribution, urbanization and the informal economy, migration, ethnicity, and the role of the state and international agencies in domestic economies.

LAS 4465. Housing in World Perspective. (3 cr; QP–DHA 3463; SP–§DHA 4465; DHA 2401, DHA 2463 or #; A-F only) 
Evaluation of theories and concepts that allow an understanding of housing policies and housing choices of individuals, families, and households in developed and developing countries.

LAS 4479. Latin American Government and Politics. (3-4 cr; SP–§Pol 4479; Pol 1054 or Pol 3051 or non-pol sci grad or #) 
An overview of Latin American politics and political economy focused on authoritarianism, human rights, and redemocratization; development and economic policy; social movements; ethnicity and race; religion; revolution; U.S.-Latin American relations.

Learning and Academic Skills (LASk)

College of Liberal Arts

LASK 1001. Mastering Skills for College Success. (2 cr) 
Practical assistance to develop effective, efficient learning/academic performance skills. Improve reading, memorization, test-taking, critical thinking; identify academic and career learning styles, motivation, life skills, and their relation to successful academic performance.

LASK 1101. Academic Success. (1 cr; SP–§Acad 1101; S-N only) 
Skilled assistance in identifying factors interfering with academic performance, selecting strategies and establishing a plan to promote academic success. Student learning style and skills, study skills, goal setting, life management skills, motivation, attitude as they relate to learning and academic performance.

LASK 1501. Returning to Learning. (2 cr) 
Turn life goals into educational plans, address life management and learning/academic performance skills. Inventories about abilities, interests, and skills. Guidance for planning major and selecting courses, learning strategies, time management, note-taking, test-taking, writing skills.

LASK 3201. Effective Job Search and Interview Skills for Non-Native Speakers. (1 cr; SP–§3201; S-N only) 
Practical assistance for career search process; immediate/long-term career objectives. Develop effective job search strategies; refine written, verbal, behavioral communication job seeking skills; deal with diversity issues. Video-tape mock interviews.

LASK 3301. Career Development and Job-Seeking Skills for Students with Disabilities. (2 cr; SP–§3301) 
Adapt career planning, job-seeking process to specialized educational, vocational, personal, and social needs of students with disabilities. Assess skills, interests, values, personality, goals as related to career decisions. Practical assistance occupational choices, resumes, interviewing, evaluating job offers. Legal rights, discrimination, disclosure issues.

LASK 3303. Internship Experience for Students with Disabilities. (2 cr; SP–§3303) 
Gain work experience, future employment. Combine practical internship experience with classroom activities. Try out/assess work skills, identify employment strengths/weaknesses, improve job maintenance skills, determine reasonable job accommodations. Minimum four hrs/week at approved site.

LASK 3980. Tutor Training: Tutoring the College Student. (2 cr; SP–§3980) 
Training and practical experience in knowledge and fundamental skills essential to tutors across academic disciplines. Provides opportunity for tutor certification by the College Reading & Learning Association.

LASK 4001. Dynamics of Success: From Senior Year to New Professional. (1 cr) 
Explores key issues as students progress to new professional or graduate education. Understand new roles, responsibilities; maximize benefits of undergraduate education. Topics include work/life balance, career development, group dynamics, and organizational culture.

LASK 5201. Effective Job Search and Interview Skills for Non-Native Speakers. (1 cr; SP–§5201; S-N only) 
Practical assistance for career search process; immediate/long-term career objectives. Develop effective job search strategies; refine written, verbal, behavioral communication job seeking skills; deal with diversity issues. Video-tape mock interviews.

LASK 5301. Career Development and Job-Seeking Skills for Students with Disabilities. (2 cr; SP–§5301) 
Adapt career planning, job-seeking process to specialized educational, vocational, personal, and social needs of students with disabilities. Assess skills, interests, values, personality, goals as related to career decisions. Practical assistance occupational choices, resumes, interviewing, evaluating job offers. Legal rights, discrimination, disclosure issues.

LASK 5960. Topics in Graduate Studies. (1 cr; S-N only) 
Special classes or seminars on topics related to successful learning and academic skills in graduate school. Topics listed in Learning and Academic Skills Center Office (104 Eddy Hall).

Linguistics (Ling)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

Ling 1701. Language and Society. (3 cr) 
Role of language in 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 3001. Introduction to Linguistics. (4 cr; QP–§3001; §3005; §5001) 
Phonetics, phonology, morphology, syntax, semantics, and historical-comparative linguistics; language learning and psychology; foreign language; linguistic universals; language in society.

Ling 3001H. Honors: Introduction to Linguistics. (4 cr; QP–§3001, §3005H) 
Supervised planning and research for honors thesis to be completed in 3052.

Ling 3052H. Honors: Thesis. (3 cr; QP–§3051; SP–§3051) 
Supervised research, writing, and revision for honors thesis begun in 3051.

Ling 3101W. Languages of the World. (3 cr; QP–§3001 or §3011 or #) 
Survey of language families of the world; classifying languages genetically and typologically; historical relationships among languages.

Ling 3301. Introduction to Phonetics. (4 cr; QP–§3301; §3301H, §3301 or #; SP–§5301; 3001 or 3011 or #3011 or §3011 or §3011H or §3011 or §3011H or #) 
Supervised planning and research for honors thesis to be completed.

Ling 3800. Historical Linguistics. (3 cr; QP–§3800; §3800 or §3800H) 
Supervised research, writing, and revision for honors thesis begun.

Ling 4001. History of Relations Between U.S. and Mexico in the 19th and 20th centuries. (3 cr; SP–$Hist 4001; §Hist 4001) 
Examines histories as they intersect in the late 1820s through the loss of Texas, the Mexican-American War, and economic relations between the two countries including NAFTA and the Chiapas rebellion of 1994.

Ling 4002. Linguistic Analysis. (1 cr; SP–§4002) 
Techniques for analyzing phonological, morphological, and syntactic data from a variety of languages; discovering, stating, and justifying relationships among languages.

Ling 4901. Senior Project. (1 cr; QP–§Ling 4901; §Ling 4901; §5001) 
Revision and/or expansion of a paper or graduate school project under the supervision of a faculty member.

Ling 5001. History of Relations Between U.S. and Mexico in the 19th and 20th centuries. (3 cr; SP–§5001; §5001) 
Examines histories as they intersect in the late 1820s through the loss of Texas, the Mexican-American War, and economic relations between the two countries including NAFTA and the Chiapas rebellion of 1994.

For definitions of course numbers, symbols, and abbreviations, see page 289.
Course Descriptions

Ling 5001. Introduction to Linguistics. (4 cr; QP–§3001, §3001H; grad or #; SP–§3001, §3001H; grad or #) Phonology, morphology, syntax, semantics, and historical-comparative linguistics; language learning and psychology of language; linguistic universals; language in society.

Ling 5005. Introduction to Applied Linguistics. (3 cr; QP–3001 or 3001H or 5001 or #; SP–3001 or 3011 or 5001 or #) Relationships between linguistics and neighboring disciplines; applications to practical fields such as lexicography, orthography, translation and interpreting, educational planning, language teaching, bilingual education, education of the deaf and correction of language disorders; computer applications; forensic applications. Topics may vary with each offering.

Ling 5101. Language Types and Linguistic Universals. (3 cr; QP–3001 or 3001H or 5001 or #; SP–3001 or 3011 or 5001 or #) Comparison of languages and language types; cross-linguistic similarities and universals of language, and their explanation.

Ling 5105. Field Methods in Linguistics I. (4 cr; QP–5201, 5302 or #; SP–5201, 5302 or #) Techniques for obtaining and analyzing linguistic data from unfamiliar languages through direct interaction with a native speaker.

Ling 5106. Field Methods in Linguistics II. (4 cr; SP–5105) Techniques for obtaining and analyzing linguistic data from unfamiliar languages through direct interaction with a native speaker.

Ling 5201. Introduction to Syntax. (3 cr; QP–3001 or 3001H or 5001 or #; SP–3001 or 3011 or 5001 or #) Examination of syntactic phenomena and constructions in a variety of languages; principles of grammar construction and evaluation; syntactic theories as instruments of grammatical analysis.

Ling 5202. Syntactic Theory. (3 cr; QP–5201; SP–5201) A thorough foundation in modern syntactic theory through an intensive study of a number of syntactic phenomena in various languages. Emphasizes syntactic argumentation and the development of constraints on grammatical formalisms.

Ling 5205. Semantics. (3 cr; SP–5202 or #) Analysis of sentence meaning with attention to semantic properties and relations such as analyticity, entailment, quantification, and generality. Philosophical background; formal techniques of semantic analysis; sentence meaning depends on word meaning, syntax, and context. The role of semantics in grammatical theory.

Ling 5206. Linguistic Pragmatics. (3 cr; SP–5201, 5205 or #) The 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.

Ling 5301. Introduction to Phonetics. (4 cr; QP–§3001, §3001H; SP–§3001H or §3001 or 5001 or #) Phonetic analysis and transcription of speech. Exploration of articulatory and acoustic correlates of speech. Extensive practice transcribing. Emphasis on narrow transcription of human speech. One section focuses on universal phonetics, another provides emphasis on English.

Ling 5302. Introduction to Phonology. (3 cr; QP–5301, SP–5301) Concepts and types of information needed for describing patterns in the sounds of words, for all speakers of all human languages, including current theoretical frameworks. Extensive practice identifying and analyzing phonological patterns in the words of a language.

Ling 5303. Phonological Theory. (3 cr; QP–5302 or #; SP–5302 or #) Further exploration of the phonology of human languages. The course will prepare students to read papers in the literature and to do research in phonology.

Ling 5461. Conversation Analysis. (3 cr; QP–3001 or 3001H or 5001 or #; SP–5301 or 5001; 5001 or #) Discourse processes. Application of concepts through conversation analysis.

Ling 5462. Field Research in Spoken Language. (3 cr; QP–5461 or Spch 5461 or #; SP–5301 or 5461 or Spch 5461 or #) Transcribing and analyzing talk and movement related to talk. Applying concepts to recorded conversations.

Ling 5501. Introduction to Language Acquisition. (3 cr; QP–3001 or 3011H or 5001 or #; SP–3001 or 3011 or 5001 or #) Overview of first and second language acquisition. Does not fulfill degree requirements for majors in linguistics or the MA in ESL.

Ling 5505. Introduction to Second Language Acquisition. (3 cr; QP–3001 or 3011 or 5001, a course on phonological and grammatical structure of a language; SP–3001 or 3011, a course on phonological and grammatical structure of a language) Introduction to research on the language and learning processes of second-language learners: the linguistic structure of their interlanguage, the cognitive and social factors which influence their acquisition of a new language.

Ling 5601. Introduction to Historical Linguistics. (3 cr; QP–3601; 3001 or 5001; SP–3601; 3001 or 3011 or 5001) Historical change in phonology, syntax, semantics and the lexicon; linguistic reconstruction; genetic relationship among languages.

Ling 5701. Sociolinguistics. (3 cr; QP–3001 or 3001H or 5001 or #; SP–3001 or 3011 or 5001 or #) Social determinants of linguistic diversity, variation, and change. Topics may include social and regional dialects, language style and register, style-shifting and code-switching, the quantitative study of speech, linguistic and social inequality.

Ling 5721. Bilingualism. (3 cr; QP–3001 or 3001H or 5001 or #; SP–3001 or 3011 or 5001 or #) Sociolinguistic theory and methods in the study of bilingualism; language ecology in multilingual societies; language and language behavior in the bilingual individual; language in ethnic conflict; implications for public policy and planning.

Ling 5801. Introduction to Computational Linguistics. (3 cr; QP–3001 or 3011H or 5001 or #; programming experience helpful; SP–3001 or 3011 or 5001 or #) Methods and issues in computer understanding of natural language. Programming languages and their linguistic applications. Lab projects.

Ling 5802. Computational Linguistics. (3 cr; SP–5401 or #; SP–5801 or #) Computer processing of natural language. Applications to such areas as speech recognition and information retrieval.

Ling 5900. Topics in Linguistics. (3 cr; SP–#) Topics vary. See Class Schedule.

Ling 5931. Fundamentals of Contemporary English. (3 cr; QP–3001 or 3011H or 5001 or #; SP–3001 or 3011 or 5001 or #) Word and sentence structure of contemporary English.

Ling 5932. Descriptive Studies of Modern English. (3 cr; QP–3001 or 3011H or 5001 or #; SP–3001 or 3011 or 5001, 5201 or 5301 or #) Studies of selected aspects of the morphology, syntax, and/or semantics/pragmatics of modern English with emphasis on analysis of written or recorded texts.

Ling 5993. Directed Study. (1-3 cr; SP–#) Directed study for Linguistics.

Management (Mgmt)

Department of Strategic Management
Curtis L. Carlson School of Management

Mgmt 2350. Introduction to Business and Business Careers. (4 cr; SP–CSOM Soph; A-F only) Career exploration and self-development for students. Introduction to functional areas of business and to issues related to the purpose of business.

Mgmt 3001. Fundamentals of Management. (2 cr; SP–At least 40 sem; A-F only) Organizational analysis/behavior. Structure/functioning of complex organizations. Leadership/management for establishing goals, policies, procedures, plans. Motivation, culture, organizational design. group dynamics, performance appraisal, negotiation.

Mgmt 3070. Topics in Management: Evolution of American Management. (4 cr; SP–At least 60 credits completed or in progress; A-F only) Introduction to history/development of American management as it underlies current management ideas/practice. Business organization, finance/marketing, management methods, education for management. Reading/in-class discussion of business cases and of past/present management literature.

Mgmt 3080. Topics in Ethics. (4 cr; SP–At least 60 credits taken or in progress; A-F only) Selected topics/problems of current interest considered in depth. Class discussions, course projects.

Mgmt 3090. Topics in Leadership: Perspectives on Management. (4 cr; A-F only) Developing/adapting a personal leadership position/ values profile. How organizations with effective/ compassionate leadership empower their associates. Going beyond simple participative management and into world-class competitive organizations where individuals are valued for their leadership/unique creativity.


Mgmt 4002. Managerial Psychology. (4 cr; A-F only) Behavioral principles, methods that underlie and compose dimensions of managerial competence and contribute to managers’ effectiveness in preventing and solving problems within and between individuals and among diverse teams. Development of human resource skills management needs based partially on experiential exercises.

Mgmt 4004W. Business Policy: Strategy Formulation and Implementation. (4 cr; QP–135 credits; completion of business core courses; SP–90 credits; completion of business core courses; A-F only) Integrative perspective on overall direction of the enterprise involving both choice of products and markets and selection of organization structures and management styles; emphasis on involving the identification of key issues, evaluation of options, and making recommendations under conditions of uncertainty and incomplete information.

Mgmt 4006. Small Business Management. (4 cr; SP–CSOM upper div; A-F only) Role of small business—alternative entry strategies, functional expertise required as a firm competes in its environment.

Mgmt 4008. Entrepreneurial Management. (4 cr; A-F only) Assessing the opportunities and managing the constraints in developing new business; structuring the venture, perceptions the critical issues, and obtaining the skills needed to succeed. Management, operations, marketing, financial, legal, and competitive issues. The business plan for start-ups, buyouts, franchises, and the family firm.
Marathi (Mar)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

Mar 1101. Beginning Marathi. (4 cr; SP–3101)
Basic listening, speaking, reading, and writing skills. Emphasis on the development of communicative competence.

Mar 1102. Beginning Marathi. (4 cr; SP–3102 or 3101 or equival.)
Emphasis on developing proficiency in all four language modalities—listening, speaking, reading, and writing.

Mar 3101. Beginning Marathi. (4 cr; SP–3101)
Basic listening, speaking, reading, and writing skills. Emphasis on the development of communicative competence.

Mar 3102. Beginning Marathi. (4 cr; SP–3102 or 3101 or equival.)
Emphasis on developing proficiency in all four language modalities—listening, speaking, reading, and writing.

Mar 3131. Intermediate Marathi. (4 cr; SP–3131 or 3102 or equival.)
Speaking and comprehension; development of reading and writing skills based on Marathi-language material.

Mar 3132. Intermediate Marathi. (4 cr; SP–3131 or equival.)
Speaking and comprehension; development of reading and writing skills based on Marathi-language material.

Mar 5992. Directed Readings. (3-5 cr; max 12 cr; SP–, A, Q)
Individualized guided reading or study of modern Marathi texts.

Mar 5994. Directed Research. (3-5 cr; max 12 cr; SP–, A, Q)
Directed research on a subject agreed upon by student and instructor.

Marketing (Mktg)

Department of Marketing and Logistics Management

Curtis L. Carlson School of Management

Mktg 3001. Principles of Marketing. (2 cr; QP–Econ 1101 or equiv; SP–Econ 1101 or equiv; A–F only)
Introduction to terms, concepts, and skills useful in analyzing marketing problems. Emphasis on the development of skills in the areas of market analysis, market behavior, and decision making. Requires knowledge of microeconomics.

Mktg 3010. Advanced Topics in Marketing. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Focus on special topics of current interest. Topics may include pricing, promotion, place, and product strategies in the context of a specific industry or market segment. Requires knowledge of microeconomics.

Mktg 3020. Consumer Behavior. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the psychology of consumer behavior. Emphasis on understanding the decision-making process and the factors that influence consumer behavior. Requires knowledge of microeconomics.

Mktg 3030. Marketing Management. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the principles and practices of marketing management. Emphasis on the development of marketing strategies and the implementation of marketing programs. Requires knowledge of microeconomics.

Mktg 3040. Marketing Research. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the principles and practices of marketing research. Emphasis on the development of research strategies and the implementation of research programs. Requires knowledge of microeconomics.

Mktg 3050. Marketing Strategy. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the principles and practices of marketing strategy. Emphasis on the development of marketing strategies and the implementation of marketing programs. Requires knowledge of microeconomics.

Mktg 3060. Marketing Management. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the principles and practices of marketing management. Emphasis on the development of marketing strategies and the implementation of marketing programs. Requires knowledge of microeconomics.

Mktg 3070. International Marketing. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the principles and practices of international marketing. Emphasis on the development of marketing strategies and the implementation of marketing programs in international markets. Requires knowledge of microeconomics.

Mktg 3080. Marketing Strategy. (4 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Introduction to the principles and practices of marketing strategy. Emphasis on the development of marketing strategies and the implementation of marketing programs in international markets. Requires knowledge of microeconomics.

Mktg 3090. Marketing Topics. (2 cr; QP–3000, BA 1500 or equiv; SP–3001, BA 1500 or equiv; A–F only)
Selected topics and problems of current interest considered in depth. Class discussion and course projects.

Materials Science (MatS)

Department of Chemical Engineering and Materials Science

Institute of Technology

MatS 1001. Introduction to Chemical Engineering and Materials Science. (1 cr; SP–Recommended for [chemical engineering, materials science/engineering] majors; 5-§ only)
Introduction to chemical engineering, materials science/engineering. Practical examples of important advances in both fields. Design problems, career opportunities. Lectures, demonstrations, interactive exercises.

MatS 2601. Introduction to Materials Science (Honors). (3 cr; QP–IT lower div honors program; SP–IT lower div honors program)
Physical principles which govern materials properties at the microscopic scale. Starting from the atomic structure and interatomic bonding, it moves to more complex, physical properties: mechanical, electrical, optical, and thermodynamical properties.

MatS 3011. Introduction to Materials Science and Engineering. (3-4 cr; QP–Chem 1021, Phys 1253, Math 1261; SP–Chem 1201, Math 1272 or 1372, Phys 1302)
Builds progressively from electrons to atoms to bonding to crystal structures. Defects, X-ray diffraction, phase diagrams as a basis for understanding mechanical/electrical properties. Metals, polymers, ceramics, semiconductors, composites.

MatS 3012. Metals and Alloys. (3 cr; QP–3400, 5011; SP–Graduate of at least C on IT 3911, A–F only)

MatS 3012W. Structure and Mechanical Behavior of Materials. (3 cr; QP–3400, 5011; SP–Graduate of at least C on IT 3911, A–F only)
Structure of crystalline materials. Defects (including point defects, dislocation, and grain boundaries). Role of crystallography/defects in determining mechanical properties. Characterization of crystal structure/defects (using X-ray diffraction, TEM). Behavior of defects during mechanical testing.

MatS 3041. Industrial Assignment. (1-2 cr; SP–MatS upper div completion of MatS program through fall sem of 3rd yr; GPA of at least 2.80, regis in co-op program; A–F only)
Industrial work assignment in engineering co-op program. Formal written report.
**Course Descriptions**

**Chemistry (Chem)**

**Chem 3011. Organic Chemistry**
(3 cr; QP–§1031, §1051, §1111, §1151; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Chem 3502. Introduction to Inorganic Chemistry**
(4 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in GC 0631; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Mathematics (Math)**

**Math 1010. Derivatives and Integrals**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in GC 0631; SP–§1015, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1031. College Algebra and Probability**
(3 cr; QP–§1015, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in GC 0631; SP–§1015, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1051. Precalculus**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in GC 0631; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1071. Calculus**
(4 cr; QP–§1031, §1111, §1151; 3 yrs high school math or grade of at least C- in 1031, SP–§1271, §1281, §1371, §1375; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1142. Short Calculus**
(4 cr; QP–§1211, §1251, §1351, §1355; 3 yrs high school math or grade of at least C- in 1051, SP–§1271, §1281, §1371, §1375; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1151. Precalculus**
(3 cr; QP–§1008, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1155. Intensive Precalculus**
(5 cr; QP–§1031, §1111, §1201, §1208, §1201, §1205, §1215; 4 yrs high school math or placement exam or grade of at least C- in GC 0631; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Math 1157. Calculus I**
(4 cr; QP–§1142, §1211, §1251, §1351, §1355; 4 yrs high school math including trig or placement test or grade of at least C- in 1151, SP–§1142, §1211, §1371, §1375; 4 yrs high school math including trig or placement test or grade of at least C-in 1151 or 1155)

**Math 1159. Calculus II**
(4 cr; QP–§1142, §1211, §1251, §1351, §1355; 4 yrs high school math including trig or placement test or grade of at least C- in 1151 or 1155)

**Statistics (Stat)**

**Stat 3611. Introduction to Probability and Statistics**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 3631. Statistical Methods**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 3651. Regression Analysis**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 4621. Advanced Statistical Methods**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 4651. Time Series Analysis**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 4671. Nonparametric Statistics**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 4681. Multivariate Analysis**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)

**Stat 4691. Bayesian Statistics**
(3 cr; QP–§1031, §1111, §1151, §1201; 3 yrs high school math or placement exam or grade of at least C- in 1051; SP–§1031, §1151, §1155; 3 yrs high school math or placement exam or grade of at least C- in GC 0731)
Math 1272. Calculus II. (4 cr; §1261, §1353, §1552; [1252 or equiv] with grade of at least C; SP–§1372, §1572; [1272, §1372 or equiv] with grade of at least C) Techniques of integration. Calculus involving transcendental functions, polar coordinates. Taylor polynomials, vectors/cubes in space, cylindrical/spherical coordinates.

Math 1281. Calculus with Biological Emphasis I. (4 cr; §1142, §1221, §1253, §1353, §1351, §1551, [four yrs high school math including trigonometry] or [grade of at least C- in 1151] or placement exam). [or §4; §1142, §1371, §1571; [four yrs high school math including trigonometry] or [grade of at least C in [1151 or 1155]] or placement exam]. [or §4; A-F only] Differential calculus of single-variable functions, basics of integral calculus. Applications emphasizing biological sciences.

Math 1282. Calculus with Biological Emphasis II. (4 cr; §1261, §1353, §1552; [1252 or 1352] with grade of at least C-; [or §4; SP–§1372, §1572; [1272 or 1281 or 1371] with grade of at least C-]. [or §4; A-F only] Techniques/applications of integration, differential equation systems, matrix algebra, basics of multivariable calculus. Applications emphasizing biology.

Math 1371. IT Calculus I. (4 cr; §1251, §1551; IT, background in [precalculus, geometry, visualization of functions/graphs]; §1571, §1572; background in [precalculus, geometry, visualization of functions/graphs]; §1551, §1552; familiarity with graphing calculators recommended) Differential calculus of single-variable functions, basics of integration of single-variable functions. Applications: max-min, related rates, area, curve-sketching. Emphasizes use of calculator, cooperative learning.

Math 1372. IT Calculus II. (4 cr; §1572; IT, grade of at least C– in 1371) Techniques of integration. Calculus involving transcendental functions, polar coordinates, Taylor polynomials, vectors/cubes in space, cylindrical/spherical coordinates. Emphasizes use of calculators, cooperative learning.


Math 1571H. Honors Calculus I. (4 cr; §1271, §1371; IT Honors office approval; SP–§1271, §1371; IT Honors office approval) Differential/integral calculus of functions of a single variable. Emphasizes hard problem-solving rather than theory.

Math 1572H. Honors Calculus II. (4 cr; §1571; IT, Honors office approval) Partial derivatives, multiple integrals, vector analysis, partial differential equations. Continuation of 1571. Initial value problems, separable variables, introduction to linear algebra.

Math 2001. Actuarial Science Seminar. (1 cr; §1261 or equiv; SP–1272 or equiv; S-N only) Actuarial science as a subject and career. Guest lectures by actuaries. Resume preparation and interviewing skills. Review and practice for actuarial exams.

Math 2243. Linear Algebra and Differential Equations. (4 cr; §1261, §1263, §1271, §2253, §2573; 1272, §1272 or equiv) Linear algebra: basis, dimension, matrices, eigenvalues/eigenvectors. Differential equations: first-order linear, separable; second-order linear with constant coefficients; linear systems with constant coefficients.

Math 2263. Multivariable Calculus. (4 cr; §1372, §1572, §1672 or 1573; §2253, §2573, §2732, §2733 or 1372 or 1572) Derivatives as a linear map. Multivariable integral calculus of functions of several variables, including change of coordinates using Jacobians. Line/surface integrals. Gauss, Green, Stokes Theorems.

Math 2283. Sequences, Series, and Foundations—Writing Intensive. (4 cr; §1252 or §1253 or §1352 or §3252 or §3253 or §3552 or §2263 or §2263 or §2423 or §2432 or §2373 or §2374) Introduction to reasoning used in advanced mathematics. Elements of logic. Mathematical induction. Real number system. General, monotonically recursively defined sequences. Convergence of infinite series/sequences. Taylor’s series. Power series with applications to differential equations. Newton’s method.

Math 2373. IT Linear Algebra and Differential Equations. (4 cr; §1251, §1253 or §1553; IT, familiarity with graphing calculator recommended) Linear algebra: basis, dimension, eigenvalues/eigenvectors. Differential Equations: linear equations/systems, phase space, forcing/resonance, qualitative/numerical analysis of nonlinear systems. Laplace transforms. Emphasizes use of computer technology.

Math 2374. IT Multivariable Calculus and Vector Analysis. (4 cr; §1252, §1253 or §1553; IT, §1552; §2253; §1272 or §1372); IT familiarity with graphing calculator recommended) Derivative as a linear map. Differential/integral calculus of several variables, including change of coordinates using Jacobians. Line/surface integrals. Gauss, Green, Stokes theorems. Emphasizes use of computer technology.


Math 2573H. Honors Calculus III. (4 cr; §1572 or IT Honors office approval) Integral calculus of several variables. Vector analysis, including theorems of Gauss, Green, Stokes.

Math 2574H. Honors Mathematics IV. (4 cr; §1573 or equival) Honors office approval) Advanced linear algebra, differential equations. Additional topics as time permits.

Math 3113. Topics in Elementary Mathematics I. (4 cr; §1553 or §1573 or §1574) Transposed, series solutions, systems, numerical methods, plane autonomous systems, stability.

Math 3116. Topics in Elementary Mathematics II. (4 cr; §1553 or §1573 or §1574) Boundary value problems, partial differential equations, complex variables, dynamical systems, calculus of variations, numerical methods. Green’s functions, delta fund functions, complex integrals, wavelets, conformal mapping, finite elements/differences. Applications: fluid/continuum mechanics, heat flow, signal processing, quantum mechanics.

Math 4512. Differential Equations with Applications. (3 cr; §3261 or §3263 or §3551; SP–2243 or 2373 or 2573) Laplace transforms, series solutions, systems, numerical methods, plane autonomous systems, stability.


Math 4606. Advanced Calculus. (4 cr; §1352 or §1353; §3252 or §3552; §3552; SP–[2263 or 2374] or [2283 or §3263] or §374) Limits for the real numbers. Techniques of proof for limit theorems, continuity, uniform convergence. Rigorous treatment of differential/integral calculus for single/multivariable functions.
Math 4990. Topics in Mathematics. (1-4 cr; max 12 cr; QP—SP; #)

Math 4991. Independent Study. (1-4 cr; max 12 cr; QP—SP; #)

Math 4992. Directed Reading. (1-4 cr; max 12 cr; QP—SP; #)

Math 4993. Directed Study. (1-4 cr; max 12 cr; QP—SP; #)

For a CLA senior project.

Math 5067. Actuarial Mathematics I. (4 cr; QP—#; SP—Soph math course; SP—Soph math course)

Mathematical background (e.g., partial differential equations, Fourier series, computational methods, basic computer skills). Formal theories, undecidable theories, models of arithmetic. Review of matrix theory, linear algebra. Vector spaces, linear transformations over abstract fields. Group theory, including normal subgroups, quotient groups, homomorphisms, isomorphism class, Sylow’s theorems. Specific examples: permutation groups, symmetry groups of geometric figures, matrix groups.

Math 5286H. Honors: Fundamentals of Algebra I. (4 cr; QP—Soph sequence; #; [2243 or 2374 or 3354 or 3551])

Review of matrix theory, linear algebra. Vector spaces, linear transformations over abstract fields. Group theory, including normal subgroups, quotient groups, homomorphisms, isomorphism class, Sylow’s theorems. Specific examples: permutation groups, symmetry groups of geometric figures, matrix groups.

Math 5286H. Honors: Fundamentals of Algebra II. (4 cr; QP—#; SP—#)

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.

Math 5335. Geometry I. (4 cr; QP—#; 3354 or 3551; [2361 or 3355 or 3552]; SP—[2243 or 2373 or 2374]; [2263 or 2374 or 3574])

Advanced two-dimensional Euclidean geometry from a vector viewpoint, including many theorems/problems about triangles/circles, isometries, connections with Euclid’s axioms. Hyperbolic geometry, how it compares with Euclidean geometry.

Math 5336. Geometry II. (4 cr; QP—#; SP—#)

Projective geometry, including: relation to Euclidean geometry, finite metrics, fundamental theorem of projective geometry. N-dimensional Euclidean geometry from a viewpoint to vectors. Emphasizes N3, including: polarities, conics, quadrics.

Math 5345. Introduction to Topology. (4 cr; QP—#; 3252 or 3355; [2362 or 3552]; SP—[2243 or 2374]; [2263 or 2374 or 3574])

Set theory. Euclidean/metric spaces. Basics of general topology, including compactness/connectedness.

Math 5378. Differential Geometry. (4 cr; QP—#; 3552 or 3355; 3262 or 3552; SP—[2243 or 2374]; [2263 or 2374 or 3574])

Basic geometry of curves in the plane and in space, including Frenet formula, theory of surfaces, differential forms, Riemannian geometry.

Math 5385. Introduction to Computational Algebraic Geometry. (4 cr; QP—#; 3252 or 3354 or 3551; SP—[2263 or 2374]; [2263 or 2374 or 3574])

Geometry of curves/surfaces defined by polynomial equations. Emphasizes concrete computations with polynomials. Includes computer algebraic system, implicit/parametric curves, intersection between algebra and geometry. Abstract algebra presented as needed.

Math 5467. Introduction to the Mathematics of Waves. (3 cr; QP—#; 3261 or 3355 or 3351 or #; SP—2243 or 2373 or 2573 or 3578)


Math 5481. Mathematics of Industrial Problems I. (4 cr; QP—#; 2 yrs calc, familiarity with some programming language; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])

Familiarity with some programming language. Topics in industrial math, including color photography, catalytic converters, photocopying.

Math 5482. Mathematics of Industrial Problems II. (4 cr; QP—#; 2 yrs calc, familiarity with some programming language; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])

Familiarity with some programming language. Topics in industrial math, including color photography, catalytic converters, photocopying.

Math 5485. Introduction to Numerical Methods I. (4 cr; QP—#; 3262 or 3355 or 3551; some computer science skills recommended; SP—[2243 or 2374 or 2373]; some computer science skills recommended)

Solution of nonlinear equations in one variable. Interpolation, polynomial approximation, numerical integration/differentiation, numerical solution of initial-value problems.

Math 5486. Introduction To Numerical Methods II. (4 cr; QP—#; SP—#)


Math 5487. Computational Methods for Differential and Integral Equations I. (4 cr; QP—#; SP—#)


Math 5488. Computational Methods for Differential and Integral Equations II. (4 cr; QP—#; SP—#)


Math 5525. Introduction to Ordinary Differential Equations. (4 cr; QP—3261 or 3355 or 3552 or 3551; SP—[2243 or 2373 or 2573]; [2263 or 3583 or 3574])


Math 5535. Dynamical Systems and Chaos. (4 cr; QP—#; 3252 or 3355 or 3352 or 3552; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])

Dynamical systems theory. Emphasizes iteration of one-dimensional mappings. Fixed points, periodic points, stability, bifurcations, symbolic dynamics, chaos, fractals, Julia/Mandelbrot sets.

Math 5583. Complex Analysis. (4 cr; QP—§5553; 3252 or 3355 or 3352 or 3552; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])


Math 5587. Elementary Partial Differential Equations I. (4 cr; QP—#; 1 yr soph calc; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])

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.

Math 5588. Elementary Partial Differential Equations II. (4 cr; QP—#; Full yr soph calc; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])

A-F only


Math 5615H. Honors: Introduction to Analysis I. (4 cr; QP—#; 1 yr soph calc; 3262, 3352; SP—[2243 or 2373 or 2573]; [2263 or 2374 or 3574])

A-F only


Math 5616H. Honors: Introduction to Analysis II. (4 cr; QP—#; SP—5615)

integration of multivariable functions, Implicit Function Theorem, Stokes’ Theorem. Additional topics as time permits.

Math 5611. Basic Theory of Probability and Statistics. (4 cr; QP–2243 or 2373 or 5651 or Stat 5101; 2263 or 2374 or 2573) Logical development of probability, some basic issues in statistics. Probability spaces, random variables, their distributions/expected values. Law of large numbers, central limit theorem, generating functions, sampling, sufficiency, estimation.


Math 5705. Combinatorics A. (4 cr; QP–Soph math course; some linear algebra recommended; SP–Soph math course, some linear algebra recommended) Basic enumeration, inclusion-exclusion, recurrence relations, generating functions (ordinary and exponential), elementary asymptotics, partitions, trees, listing algorithms, recurrences, bijections/involutions. Polya theory. Optional topics include extremal set theory, symmetric functions, partially ordered sets.

Math 5707. Combinatorics B. (4 cr; QP–Soph math course; some linear algebra recommended; SP–Soph math course; some linear algebra recommended) Elementary graph theory, including related algorithms, flows/networks, matching theory, combinatorial optimization. Optional topics include designs, Latin squares, permanents, linear programming, Ramsey theory, coding theory/finite fields, matroids.


Math 5900. Tutorial in Advanced Mathematics. (1-6 cr [max 120 cr]; A-F only) Individually directed study.

Mechanical Engineering (ME) Department of Mechanical Engineering Institute of Technology

ME 3011. Introduction to Engineering. (4 cr; QP–IT lower div; IT lower div; A-F only) Develop skills critical for practicing engineers. Core disciplinary areas of mechanical engineering and engineering design. Exposure to visual, written and oral communication forms, and to computer-based design tools. Substantial design projects, including prototype construction.

ME 3031. Basic Mechanical Measurements Laboratory. (4 cr; QP–Upper div ME; A–SP–Upper div ME, 3321, 5322; A–F only) Experimental methods, instrumentation for engineering measurements, statistical estimates of experimental uncertainty, calibration, signal conditioning, selected transducers for mechanical measurements, data acquisition and processing, and presentation of results. Measurement of temperature, pressure, humidity, stress-strain, force, velocity and flow and radiative properties.

ME 3041. Industrial Assignment I. (2 cr; QP–ME upper div, reg in ME co-op; SP–ME upper div, reg in ME co-op program; A-F only) Industrial work assignment in engineering internship program. Evaluation based on student’s formal written report covering the quarter’s work assignment.


ME 3222. Design and Manufacturing II. (4 cr; QP–ME upper div ME; SP–AEM 3020, AEM 3016, Chem 1052, Mats 3400, Phys 1253; SP–Upper div ME student, 3221, CSci 1113 or equiv; A-F only) 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.

ME 3281. System Dynamics and Control. (4 cr; QP–IT or grad student; SP–ME upper div, AEM 2021, CSci 1113; A-F only) 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.

ME 3321. Thermodynamics. (4 cr; QP–Upper div ME or AEM major; SP–IT student, Chem 1021, Phys 2243, Phys 1301; A-F only) Properties, equations of state, processes and cycles for reversible and irreversible thermodynamic systems. Modes of work and heat transfer. Equations for conservation of mass, linear momentum, energy, and entropy. Mixture properties, thermochecmy, and chemical equilibrium for ideal gases introduced.


ME 4042. Industrial Assignment II. (2 cr; QP–ME undergrad reg in ME co-op; SP–ME upper div, reg in ME Co-op program; A-F only) Industrial work assignment in engineering internship program. Evaluation based on student’s formal written report covering the quarter’s work assignment.

ME 4043. Industrial Assignment III. (4 cr; QP–ME 3742; SP–4042; A-F only) 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.

ME 4054W. Design Projects. (4 cr; QP–Upper div ME, 3201, ME 3203, ME 3205, ME 3303, ME 5342, or # SP–3011, 3321, 3322, 3323, 3322, AEM 2021; A-F only) Students work in teams and undertake a single, substantial design project. Design problems are open-ended. Lectures cover good product design process. Teams give formal presentation of progress at mid-semester design review and show completed work at the design show.

ME 4054N. Extended Design Project. (4 cr; QP–ME upper div; SP–5254, SP–4054, A-F only) Continuation of 4054 for students wishing to undertake a more substantial design project for an entire year. Permission granted when student takes 4054W and submits permission form.

ME 4081H. Mechanical Engineering Honors Thesis I. (2 cr; QP–Upper div ME honors student; SP–Upper div ME honors student; A-F only) 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.

ME 4082H. Mechanical Engineering Honors Thesis II. (2 cr; QP–Upper div ME honors student; SP–Upper div ME honors student; A-F only) 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.

ME 4131W. Thermal Environmental Engineering Laboratory. (4 cr; QP–ME upper div, 3701, 3702, 5603 or 5603D; SP–ME upper div or grad student, 3322 or 3323; A-F only) Experiments in psychrometrics, refrigeration, air conditioning, solar energy, indoor air quality, and other topics related to refrigeration, building heating and cooling, and indoor air quality.

ME 4231. Motion Control Laboratory. (4 cr; QP–ME upper div, 3201, 3701, 3702, SP–Upper div, 3201, 5281; A-F only) Microprocessor programming, digital filters, frequency response testing, modeling of electromehanical 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.


ME 4331W. Thermal Engineering Laboratory. (4 cr; QP–ME upper div, 3303, 3701, 3702, AEM 3200, or CE 3400; SP–IT upper div or grad student, 3301, 3321, 3322; A-F only) Measurement and analysis of heat transfer in single phase, multiphase, and reacting environments. Emphasis on experimental measurements relevant to thermal/fluid systems as well as the statistical design of experiments and uncertainty analysis. Heat exchange.

ME 4431W. Energy Conversion Systems Laboratory. (4 cr; QP–ME upper div, 3303, 3701, 3702, AEM 3200 or CE 3400; SP–Upper div ME or grad student, C grade or better in 3031, 3321, 3322 or 3324 with A–F only) Senior lab in which material from courses is applied to analyze the operation and control of engines, power plants, heating and ventilation systems. Emphasis on principles underlying performance characteristics of devices, measurement techniques, interpretation of experimental data, and presentation of results.

ME 5080. Topics in Mechanical Engineering. (4 cr; QP–Upper div or grad student; SP–Upper div IT or grad student, submission of permission form, #) Topics vary each semester.

ME 5090. Advanced Engineering Problems. (1-4 cr; QP–Subject to approval of department form; SP–ME upper div, #) Special investigations in various fields of mechanical engineering and related areas including an independent study project.
**Course Descriptions**

**ME 5101. Vapor Cycle Systems.** (4 cr; QP–IT or grad student; ME 3303; SP–IT upper div or grad student; A-F only)
Vapor compression and absorption refrigeration systems; heat pumps; vapor power cycle analysis, regeneration, reheat, compound cycle modifications, combines gas turbine—vapor cycle systems.

**ME 5103. Thermal Environmental Engineering.** (4 cr; QP–IT or grad student; ME 3303, 3342; SP–IT upper div or grad student, 3322 or 3323; A-F only)
Thermodynamic properties of moist air; psychrometric charts; HVAC systems; solar energy; human thermal comfort; indoor air quality; heating and cooling loads in buildings.

**ME 5105. HVAC System Design.** (4 cr; QP–IT upper div or grad student; ME 3303, ME 5342; SP–IT upper div or grad student, 3322 or 3323; A-F only)
Design procedures used for heat exchangers, cooling towers, hydronic systems, and air handling systems. HVAC system design for a commercial building.

**ME 5113. Aerosol/Particle Engineering.** (4 cr; QP–IT upper div or grad student, 3303; SP–IT upper div or grad student; A-F only)
Kinetic theory, definition, theory and measurement of particle properties, elementary particle mechanics, particle statistics; Brownian motion and diffusion, coagulation, evaporation and condensation, sampling and instrumental solutions.

**ME 5115. Air Quality and Air Pollution Control.** (4 cr; QP–IT upper div or grad student, SP–IT upper div or grad student; A-F only)

**ME 5116. Cleanroom Technology and Particle Monitoring.** (4 cr; QP–IT upper div or grad student, 3303 or SP–IT upper div or grad student; A-F only)
Fundamentals of cleanroom technology for microelectronics manufacturing; airborne and liquid-borne particulate contaminants; particle monitors: optical and condensation particle counters, wafer surface scanner, microscopy; filter performance and testing; cleanroom design and operation; high purity systems; particle detection in processing equipment.

**ME 5133. Aerosol Measurement Laboratory.** (4 cr; QP–IT upper div or grad student, SP–IT upper div or grad student; A-F only)

**ME 5221. Computer-Assisted Product Realization.** (4 cr; QP–IT or grad student, 5260 or equiv; SP–3221, AEM 3031, CSci 1113, MatS 2001; A-F only)
Injection molding with emphasis on design of manufacturing processes. Tooling design and specification of processing conditions using computer-based tools; simulation software and computer-controlled machine tools. Simultaneous process and part design. Production of tooling and parts. Part evaluation.

**ME 5223. Materials in Design.** (4 cr; QP–IT upper div or grad student, 5260 or equiv; SP–3221)
Fundamental properties of engineering materials. Fabrication, treatment. Physical and corrosive properties. Failure mechanism, cost and value analysis as related to material selection and specification.

**ME 5228. Introduction to Finite Element Modeling, Analysis, and Design.** (4 cr; QP–IT upper div or grad student, 5260 or SP–3221)
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- and two-dimensional practical engineering applications.

**ME 5231. Digital and Analog Control Laboratory.** (4 cr; QP–IT or grad student; ME–ME or AEM upper div or grad student, 5281 or equiv; A-F only)
Lab experiments illustrate and apply control theory to mechanical systems. Emphasis on real-life control design and implementation, including dynamic modeling, controller design, analysis and simulation, hardware implementation, measurement techniques, sensor calibration, data acquisition, and processing.

**ME 5241. Computer-Aided Engineering.** (4 cr; QP–IT or grad student, 3203, 3203, 3205; SP–IT upper div or grad student, 3222, CSci 1113 or equiv; A-F only)
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.

**ME 5243. Advanced Mechanism Design.** (4 cr; QP–IT or grad student; 3203 or equiv; SP–Upper div IT or grad student, 3222 or equiv; A-F only)
Analytical methods of kinematic, dynamic, and kinetoelectrodynamics analysis and synthesis of mechanisms. Computerized design for function, path, and motion generation based on Burmister theory.

**ME 5247. Stress Analysis, Sensing, and Transducers.** (4 cr; QP–IT upper div or grad student; AEM 3016; SP–AEM 3031, MatS 2003; A-F only)

**ME 5248. Vibration Engineering.** (4 cr; QP–IT or grad student; ME 5201 or equivalent; SP–Upper div IT or grad student, 3281 or equiv)
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.

**ME 5281. Analog and Digital Control.** (4 cr; QP–IT or grad student; ME 5283; SP–3281)
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. Digital implementation aliasing; computer-aided design and analysis of control system.

**ME 5286. Robotics.** (4 cr; QP–IT or grad student; ME 5283; SP–Upper div IT or AEM or CSci or grad student, 5281 or equiv; A-F only)
Manipulator forward and inverse kinematics, homogeneous transformations and coordinate frames, the Jacobian and velocity control, task primitives and programming, computational issues; determining path trajectories; modeling software and computer-aided design and control; vehicle kinematics, dynamics and guidance. Lab project demonstrates concepts.

**ME 5288. Modeling and Simulation of Dynamic Systems.** (4 cr; QP–IT or grad student; ME 5283 or equiv; SP–Upper div IT or grad student, 5281; A-F only)
Bond graphs as structured methodology for developing unified models of mechanical, electrical, magnetic, fluid, thermal, and hybrid systems. Causality and formulation of state-space equations. Analytical and numerical solution of equations of motion. Multiport fields, rigid body dynamics, and distributed parameter systems.

**ME 5341. Case Studies in Thermal Engineering and Design.** (4 cr; QP–IT or grad student, 5342; SP–IT upper div or grad student; A-F only)
Characteristics of applied heat transfer problems: nature of problem specification, incompleteness of needed knowledge base, accuracy issues. Categories of applied heat transfer problems (e.g., materials processing, turbomachinery, cooling of electronic equipment, biomedical thermal therapeutic devices, heat exchangers, HVAC systems).

**ME 5344. Thermodynamics of Fluid Flow with Applications.** (4 cr; SP–3321, 3322, IT upper div or grad student; A-F only)

**ME 5348. Heat Transfer in Electronic Equipment.** (4 cr; QP–IT or grad student, 3342; SP–Upper div IT or grad student, 3322; SP–IT upper div or grad student; A-F only)
Numerical solution of heat conduction and analogous physical processes. Develop and use a computer program to solve complex problems involving steady and unsteady heat conduction, flow and heat transfer in ducts, flow in porous media, and other special applications.

**ME 5361. Plasma-Aided Manufacturing.** (4 cr; QP–IT upper div or grad student, 3303, 3342 or equiv; SP–3462, 5611 upper div IT or grad student, 3321, 3322 or equiv; A-F only)
Properties of plasmas as a processing medium, process control and system design considerations using specific example of plasma spray coating, welding, and microelectronics processing.

**ME 5381. Biological Transport Processes.** (4 cr; QP–IT upper div or grad student, CE 3400 or equiv; SP–5ChE 5753, 6ChE 5310, upper div IT or grad student, transport class [3222 or ChEn 5103] or A-F only)

**ME 5446. Introduction to Combustion.** (4 cr; QP–IT or grad student, 5342 or equiv; SP–Upper div IT or grad student, 3321, 3322; A-F only)
Thermodynamics, kinetics, energy and mass transport, and pollutants in reacting systems. Reactors, laminar and turbulent flames. Up-draft and down-draft systems, combustion stability. Diffusion flames. Combustion in reciprocating engines, furnaces, and turbines, with emphasis on internal combustion engine performance and emissions.

**ME 5461. Internal Combustion Engines.** (4 cr; QP–IT or grad student, 3301 or equiv; SP–Upper div IT or grad student, or better in 3322 or 3324; A-F only)
Basic spark ignition and diesel engine principles, air, fuel-air and actual engine, cycle modeling; combustion and emissions, knock phenomena, air flow and volumetric efficiency, mixture requirements, ignition requirements and performance. Lectures and complementary labs.

**ME 5462. Gas Turbines.** (4 cr; QP–IT or grad student, 3301 or equiv; SP–Upper div IT or grad student, 3321; SP–IT upper div or grad student, A-F only)
Gas turbine cycles, regeneration, recuperation, reheat, intercooling, combined cycle plants, and thermoechemical 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.
Medical Technology (MedT)

Department of Laboratory Medicine and Pathology

Medical School

MedT 1010. Orientation in Medical Technology. (1 cr; SP–Fr; S-N only)
Orientation to the medical technology (clinical laboratory science) profession.

MedT 406A. Introduction to Clinical Immunohematology. (2 cr; SP–#; A-F only)
Principles of blood grouping, antibody identification, compatibility testing, serology, and immunology.

MedT 406B. Introduction to Clinical Immunohematology: Laboratory. (2 cr; SP–#; A-F only)
Exercises illustrating basic techniques in blood grouping, antibody identification, compatibility testing, and detection of antibodies by serological and immunological methods.

MedT 4082. Applied Clinical Chemistry. (3 cr; SP–4310, 4311, 4320, 4321; S-N only)
Application of basic methods and techniques in the clinical chemistry lab.

MedT 4085. Applied Clinical Hematology. (2 cr; SP–4251, 4252, 4253; S-N only)
Application of methods and techniques in clinical hematology, morphology, and hemostasis.

MedT 4086. Applied Clinical Immunohematology. (2 cr; SP–4064, 4065; S-N only)
Application of basic techniques and methods in blood banking and immunology in the clinical lab. Blood grouping, compatibility testing, and immunologic procedures.

MedT 4088. Applied Diagnostic Microbiology. (2 cr; SP–4100, 4102; S-N only)
Isolation, identification, and antimicrobial susceptibility testing of clinically relevant microbes (bacteria, fungi, parasites) from patient specimens.

MedT 4089. Specialty Rotation. (1 cr; SP–Completion of MedT preclinical professional courses; S-N only)
One-week clinical rotation in a specialty lab such as immunophenotyping, cytogenetics, surgical pathology, molecular diagnostics, immunology, or forensics.

MedT 4090. Special Laboratory Methods. (1-2 cr; SP–#)
Individual assignment to a special area of experience in the clinical lab.

MedT 4092. Honors Program: Laboratory Methods. (3 cr; SP–#)
Individual assignment to special projects or research in one of the clinical areas of chemistry, hematology, immunohematology, or microbiology.

MedT 4100. Virology, Mycology, and Parasitology for Medical Technologists. (2 cr; SP–One microbiology course with lab, one biochemistry course; A-F only)
Basic aspects of lab diagnosis of viral, fungal, and parasitic infections. Lecture.

MedT 4102. Principles of Diagnostic Microbiology. (4 cr; SP–One microbiology course with lab, one biochemistry course; A-F only)
Current techniques used in lab diagnosis of infectious disease; isolating and identifying bacteria and yeasts; antimicrobial susceptibility testing. Lecture and lab.

MedT 4127. Introduction to Management and Education I. (1 cr; SP–#; A-F only)
Basic concepts in management and education.

MedT 4128. Introduction to Management and Education II. (1 cr; A-F only)
Basic concepts in management and education.

MedT 4251. Hematology I: Basic Techniques. (3 cr; SP–Regis MedT or #; A-F only)
Theory and application of basic principles and techniques in clinical hematology and hemostasis. Lecture and lab.

MedT 4252. Hematology II: Morphology and Correlation. (2 cr; SP–4251 or CLS 5251; A-F only)
Fundamentals of examining blood and bone marrow, emphasizing the microscopic identification of immature and abnormal cells. Clinical correlation of lab findings in hematology and hemostasis. Lecture and lab.

MedT 4253. Hemostasis. (1 cr; SP–4251 or CLS 5251; A-F only)
Theory and application of specific concepts and techniques in hemostasis and coagulation. Lecture and lab.

MedT 4263. Comparative Hemostasis. (1 cr; SP–#; A-F only)
Theory and application of specific concepts and techniques in hemostasis and coagulation.

MedT 4310. Clinical Chemistry I: Lecture. (2 cr; SP–One organic chem course with lab, one biochemistry course, #; A-F only)
Principles and theory of clinical chemistry to assess renal and metabolic disease/dysfunction, electrolyte balance, and acid-base balance. Introduction to principles and processes for quality management in the clinical lab.

MedT 4311. Clinical Chemistry I: Laboratory. (2 cr; SP–One organic chem course with lab, one biochemistry course, 4310 or CLS 5310; A-F only)
Principles and theory of clinical chemistry to assess metabolic disease/dysfunction involving hormones, enzymes, lipids/proteins, cardiac function, liver and digestive tracts. Emphasis on measurement methods and physiological significance.

MedT 4320. Clinical Chemistry II: Lecture. (2 cr; SP–One organic chem course with lab, one biochemistry course, 4310 or CLS 5310; A-F only)
Application of chemical pathology principles and lab techniques in the analysis of serum, plasma, and urine. Focus on tests to evaluate selected disorders. Development of lab skills and instrumentation use with emphasis on quality control and technique.

MedT 4321. Clinical Chemistry II: Laboratory. (2 cr; SP–One organic chem course with lab, one biochemistry course, 4310 or CLS 5310; A-F only)
Application of clinical chemistry principles and lab techniques in the analysis of serum, plasma, and urine. Focus on tests to evaluate selected disorders. Development of lab skills and instrumentation use with emphasis on quality control and technique.

MedT 4500. Introduction to Clinical Laboratory Science. (3 cr; SP–Chem 1009, BioC 5001; SP–MedC grad student or #; A-F only)
Fundamental principles of laboratory management as they pertain to method validation.

MedT 5494. Advanced Methods in Quantitative Drug Analysis. (3 cr; SP–Chem 5302; A-F only)
Quantitative methods (HPLC, GC, TLC, and immunoassays) for analysis of drugs and metabolites in biological fluids. Advanced techniques such as capillary electrophoresis, supercritical fluid chromatography, GC-MS, LC-MS, and tandem mass spectrometry. Chromatographic theory and statistical approaches to method validation.

MedT 5495. Vistas in Medicinal Chemistry Research. (1 cr; S-N only)
Selected topics of contemporary interest in medicinal chemistry.

MedT 5600. General Principles of Medicinal Chemistry. (3 cr; SP–Chem 5302; A-F only)
Fundamental principles of drug receptors as therapeutic targets, drug-receptor interactions, enzyme inhibitors, drug metabolism and disposition.

Medieval Studies (MeSt)

Center for Medieval Studies

College of Liberal Arts

MeSt 1001. The Middle Ages: An Introduction to Medieval Studies. (3-4 cr; max 24 cr)
An introduction to the history, culture, literature, and architecture of the Middle Ages and to interdisciplinary methods of study.

MeSt 3610. Topics in Medieval Studies. (3-4 cr; max 24 cr)
Topics of current interest. Fall of Rome through end of the Middle Ages (ca. 300-1500 A.D.). Current topics specified in Class Schedule.

MeSt 4610. Intermediate Topics in Medieval Studies. (3-4 cr; max 24 cr)
Topics of current interest. Fall of Rome through end of the Middle Ages (ca. 300-1500 A.D.). Current topics specified in Class Schedule.

MeSt 5610. Advanced Topics in Medieval Studies. (3-4 cr; max 15 cr)
One course each term in some area of Middle Ages, reading knowledge of appropriate language. # From late antiquity through the end of the Middle Ages (circa 300-1500 A.D.). Current topics specified in Class Schedule.

MeSt 5993. Directed Studies in Medieval Studies. (3 cr; max 6 cr)
Directed study with one of the core faculty of medieval studies program.

Microbial Engineering (MicE)

Graduate School

MicE 5309. Biocatalysis and Biodegradation. (3 cr; SP–Chem through organic chem, microbial or adv chem, knowledge of word proc, e-mail, WWW access; access to college-level sci library recommended)
Assessing validity of information on biocatalysis and biodegradation; fundamentals of microbial catabolic metabolism as it pertains to biodegradation of environmental pollutants; biocatalysis for specialty chemical synthesis; display of this information on the World Wide Web.

For definitions of course numbers, symbols, and abbreviations, see page 289.
Biochemistry of microorganisms and enzymes of industrial interest. Heterologous peptide overproduction by microorganisms and yeasts; polymer, antibiotic, organic acid, and amino acid production; genetics of industrially useful microorganisms; biological systems useful for biotransformation and environmental remediation; introduction to fermentation technology.

MELC 3526. Islam and Communism. (3 cr; SP–§CAS 3526)
Development of medieval Islamic culture in Transoxiana; formation of Sufi orders; rise and development of Communist ideology; introduction of socialist principles into Central Asia; clash of Islamic principles with Communist dicta; Pan-Islamism; Pan-Turkism.

MELC 3531. Central Asian Culture. (3 cr; SP–§CAS 3531)
Development of Central Asian cultures from the rise of the Turkic dynasties (6th c.) to the present. Indo-European indigenous population displaced by the Arabs, Turks, Mongols, and the Soviets. Major themes: Islamization; Turkification; Westernization; and Sovietization.

MELC 3532. Russia and Central Asia. (3 cr; SP–§CAS 3532)
Rise and fall of the Mongol Empire, formation of the Chaghatai Khanate and the Golden Horde. Russian expansion into Central Asia and rivalry with Britain. Russia and the Central Asian republics during and after the Soviet period.

MELC 3541. Islam in the Catholic Age; Arab Phase 600 A.D. to 900 A.D. (3 cr; SP–§Arab 3541, §Hist 3541)
The rise of Islam in its Arabian setting. Roles of the prophet, the Orthodox and Umayyad Caliphs. Development of Islamic state and empire. Status of Muslims and non-Muslims.

MELC 3542. Medieval Islam. (3 cr; SP–Arab 3542, §Hist 3542)
Islamic dynasties, Mamluks and Mongols, Crusaders and Assassins. Abbasid Caliphate’s disintegration and rise of Seljuk Turks.

MELC 3543. Arabs under Mamluks and Ottomans: 1300-1920. (3 cr; SP–Arab 3543, §Hist 3543)
Arabs under Mamluk rule; Struggle against Crusaders and Mongols. Disintegration and reemergence under Muhammad Ali of Egypt, dynamic struggles in Syria, rise of Young Turks and Arab revolt.

MELC 3544. Arab World 1920 Until the Present. (3 cr; SP–Arab 3544, §Hist 3544)
Struggle in the Arab world for independence and its course since independence. Emphasis on development, political stability and unity, political structures, and the Arab-Israeli conflict.

MELC 3560. Fiction of Iran and Central Asia. (3 cr; SP–CAS 3560)
Social, political, and religious thought of Iranian (and Soviet) Central Asian writers of fiction since the early years of the 20th century; emphasizes themes of tradition, modernization, revolution (and the Sovietization), women’s rights, and secularization.

MELC 3562. Persian Poetry. (3 cr; SP–CAS 3562)
Major poetic works of Iran in translation dealing with the Arab invasion, the Seljuks, the Mongols, and the Safavids. Rise of the Persian language as a literary medium.

MELC 3563. Medieval Persian Poetry. (3 cr; SP–CAS 3563)
Study and discussion of the intellectual life of the region from the rise of the Ghaznavids (A.D. 1000) to the fall of the Timurids (A.D. 1500). Ibn Sina (Avicenna), al-Biruni, al-Ghazali, Rumi, Sîdî, and Firdowsi are among the sages whose lives are examined.
MELC 5526. Islam and Communism. (3 cr; SP–3526, CAS 5526) Development of medieval Islamic culture in Transoxiana; formation of Sufi orders; rise and development of Communist ideology; introduction of socialist principles into Central Asia; clash of Islamic principles with Communist dicta; Pan-Islamism; Pan-Turkism.

MELC 5532. Russia and Central Asia. (3 cr; SP–3532, CAS 5532) Rise and fall of the Mongol Empire, formation of the Chaghatay Khanate and the Golden Horde. Russian expansion into Central Asia and rivalry with Britain, Russia, and the Central Asian republics during and after the Soviet period.

MELC 5601. Fiction of Iran and Central Asia. (3 cr; SP–3601, CAS 5601) Social, political, and religious thought of Iranian and (Soviet) Central Asian writers of fiction since the early years of the 20th century, emphasizing themes of tradition, modernization (Westernization and Sovietization), women’s rights, and secularization.

MELC 5602. Persian Poetry. (3 cr; SP–3602, CAS 5602) Major poetic works of Iran dealing with life at the medieval courts, Sufic poetry, and “new” poetry are studied. Rudaki, Khayyam, Rumi, Hafiz, Yushij, and Farrukhzad are among the poets whose works are examined.

MELC 5993. Directed Studies. (1-10 cr; SP–#) Mil 0101. Military Science I Leadership Lab. (0 cr; SP–Enrollment in Mil 1010; A-F only) Learn and practice basic skills. Gain insight into the Advanced Course in order to make an informed decision whether to apply for it. Build self confidence and team-building leadership skills that can be applied throughout life.

Mil 0201. Military Science II Leadership Lab. (0 cr; SP–Enrollment in 1220; A-F only) Learn and practice basic military skills. Gain insight into the Advanced Course in order to make an informed decision whether to apply for it. Build self confidence and team-building leadership skills that can be applied throughout life.

Mil 0301. Military Science III Leadership Lab. (0 cr; SP–Enrollment in 3130) Open only to students in the associated Military Science Course series with different roles for students at different levels. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training and activities with Basic Course students and for the ROTC program. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Mil 0401. Military Science IV Leadership Lab. (0 cr; SP–Student must be enrolled in the Advanced Course and associated Military Science class) Open only to students in the associated Military Science Course Series. Involves leadership responsibilities for the planning, execution and evaluation of various training activities within the program. Additional duties as a primary or secondary staff member is necessary for the completion of this course. Assist in the development of Basic and Advance Course cadet’s leadership skills.

Mil 1001. Military Science I Leadership Lab. (1 cr; SP–Enrollment in 1010) Learn and practice basic skills. Gain insight into the Advance Course in order to make an informed decision whether to apply for it. Build self confidence and team building leadership skills that can be applied throughout life.

Mil 1002. Military Science I Leadership Lab. (1 cr; SP–Enrollment in 1011) Learn and practice basic skills. Gain insight into the Advance Course in order to make an informed decision whether to apply for it. Build self confidence and team building leadership skills that can be applied throughout life.

Mil 1003. Military Science II Leadership Lab. (1 cr; SP–Enrollment in 1220) Learn and practice basic skills. Gain insight into the Advance Course in order to make an informed decision whether to apply for it. Build self confidence and team building leadership skills that can be applied throughout life.

Mil 1004. Military Science II Leadership Lab. (1 cr; SP–Enrollment in 1221) Learn and practice basic skills. Build self confidence through individual and team building concepts and activities with Basic Course students and for the ROTC program. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Mil 1005. Military Science III Leadership Lab. (1 cr; SP–Enrollment in 3130) Involves leadership responsibilities for the planning, coordination, execution, and evaluation of training and activities with Basic Course students and for the ROTC program. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Mil 1006. Military Science III Leadership Lab. (1 cr; SP–Enrollment in 3131) Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training and activities with Basic Course students and for the ROTC program. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Mil 1007. Military Science IV Leadership Lab. (1 cr; SP–Enrollment in 3140) Involves leadership responsibilities for the planning, coordination, execution, and evaluation of training and activities with Basic Course students and for the ROTC program. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Mil 1008. Military Science IV Leadership Lab. (1 cr; SP–Enrollment in 3141) Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training and activities with Basic Course students and for the ROTC program. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Mil 1010. Introduction to ROTC. (1 cr; SP–Enrollment in 1001) Increase self-confidence through team study and activities in basic drill, physical fitness, rappelling, leadership reaction course, first aid, making presentations, and basic marksmanship. Learn fundamental concepts of leadership in a profession in both classroom and outdoor lab environments.

Mil 1011. Introduction to Leadership. (1 cr; SP–Enrollment in 1002) Learn apply principles of effective leading. Reinforce self-confidence through participation in physically and mentally challenging exercises. Relate organizational ethical values to the effectiveness of a leader. Participation in a weekend exercise is optional, but highly encouraged.

Mil 1220. Self/Team Development. (2 cr; SP–Enrollment in Basic Course; A-F only) Learn and apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams. Develop skills in oral presentations, writing concisely, planning of events, coordination of group efforts, advanced first aid, land navigation, and basic military tactics. Fundamentals of ROTC’s Leadership Development program.

Mil 1221. Individual/Team Military Tactics. (2 cr; SP–Enrollment in Basic Course; A-F only) Individual and team aspects of military tactics in small unit operations. Use of radio communications, making safety assessments, movement techniques, planning for team safety/ security and methods of pre-execution checks. Practical exercises with upper division ROTC students.

Mil 3130. Leading Small Organizations I. (3 cr; SP–Enrollment in Advanced Course) Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Uses small unit defensive tactics and opportunities to plan and conduct training.

Mil 3131. Leading Small Organizations II. (3 cr; SP–Enrollment in Advanced Course) Continues methodology of 3130. Analyze tasks; prepare written or oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress.

Mil 3140. Leadership Challenges and Goal Setting. (3 cr; SP–Enrollment in Advanced Course) Plan, conduct, and evaluate activities of the ROTC cadet organization. Articulate goals, put plans into action to attain them. Assess organization cohesion and develop strategies to improve it. Develop confidence in skills to lead people and manage resources. Learn/apply various Army policies and programs.

Mil 3141. Transition to Lieutenant. (3 cr; SP–Enrollment in Advanced Course) Continues methodology from 3140. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as they relate to leading as an officer in the Army. Prepare for a future as a successful Army lieutenant.

Mil 3970. Directed Studies. (3 cr; SP–#) Modern Greek (MdGk)

Department of Classical and Near Eastern Studies College of Liberal Arts


MdGk 1002. Beginning Modern Greek II. (4 cr; SP–1001 or #) Speaking and reading demotic Greek. Pattern-practice drill, simple readings, some grammar.

MdGk 1003. Intermediate Modern Greek I. (4 cr; SP–1002 or #) Review the fundamentals of syntax through various readings from Modern Greek prose writers and poets. Provides additional grammatical elements which are reinforced through reading, conversation, and composition.

MdGk 1004. Intermediate Modern Greek II. (4 cr; SP–1003 or #) Review the fundamentals of syntax through various readings from Modern Greek prose writers and poets. Provides additional grammatical elements which are reinforced through reading, conversation, and composition.
Course Descriptions

Mortuary Science (Mort)

Department of Cell Biology and Neuroanatomy

Mort 3005. History of Funeral Service. (2 cr; A-F only)
Development of funeral practices from a historical perspective with emphasis on ethnic and cultural groups that have had an impact on contemporary funeral service.

Mort 3012. Organization and Management of Funeral Business. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Principles and concepts of business organization and structure. Focus is on differences/similarities of funeral home management in a small business setting versus a corporate funeral home setting.

Mort 3014. Funeral Service Rules and Regulations. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
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 3216. Funeral Service Marketing and Merchandising. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Funeral home marketing and merchandising, including advertising, promotion, purchasing, and pricing.

Mort 3218. Funeral Practices. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Practices and procedures related to funeral directing, including social, religious, ethical, and cultural issues; event planning; conducting funeral ceremonies; record keeping; computer applications.

Mort 3202W. Psychopathology and Counseling. (3 cr; A-F only)
Applied psychological principles helpful in dealing with clients, especially those experiencing emotional crisis. Principles, techniques, and basic helping skills of counseling as applied to the funeral arrangement conference.

Mort 3205. Mortuary and Business Law. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Basic concepts and principles of business law. Review of mortuary law.

Mort 3051. Restorative Art. (2 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Theory and procedures of restorative art.

Mort 3055. Complicated Grief. (3 cr; SP–Working understanding of grief/loss; A-F only)

Mort 3061. Embalming I. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Organic and biochemistry. Chemical changes in the human body during life, after death, and during chemical preservation. Disinfection, solutions, toxicology, and embalming fluids. Cardiovascular anatomy as it is applied to the practice of embalming dead human bodies.

Mort 3062W. Embalming II. (3 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Theory and procedure of embalming.

Mort 3011W. Independent Study in Funeral Service. (1-3 cr [max 3 cr]; QP–Mortuary science major; SP–Mortuary science major)
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.

Mort 3151. Restorative Art Laboratory. (1 cr; QP–Mortuary science major; SP–Mortuary science major; A-F only)
Practical principles and techniques for restorative art. Emphasis on modeling facial features with clay or wax and the use of restorative techniques and cosmetic application on dead human bodies.

Mort 3161. Embalming I Laboratory. (1 cr; QP–Mortuary science major; SP–Mortuary science major; S-N only)
Practices and procedures of embalming in a preparation room setting using dead human bodies.

Mort 3162. Embalming II Laboratory. (1 cr; QP–Mortuary science major; SP–Mortuary science major; S-N only)
Continuation of the embalming laboratory sequence. Students develop and refine embalming techniques and skills using dead human bodies.

Mort 3370. Funeral Service Seminar. (1 cr; QP–Mortuary science major; SP–Mortuary science major; S-N only)
Selected presentations related to topics and issues in funeral service.

Mort 3380. Funeral Service Practicum. (8 cr; QP–Mortuary science major who has completed all other coursework; SP–Mortuary science major who has completed all other coursework; S-N only)
Practical experience during one academic term in a funeral home as assigned by the program.

Museum Studies (MSt)

Graduate School

MSt 5011. Museum History and Philosophy. (3 cr; SP–MSt A-F only)
Historical and philosophical roots of museum development in Europe and North America from the Renaissance to modern day museums and history centers. Emerging philosophical issues faced by museums today.

MSt 5012. Museum Practices. (3 cr; QP–8010; SP–5011 or SP–5012; A-F only)
Practical aspects of museum work. Standards, practices, responsibilities, and issues, all set in greater museum context. Curatorial and educational duties, collections management, security, funding, boards, public relations, installation, and budgeting.

MSt 5020. Internship. (1-4 cr [max 32 cr]; SP–5011, 5012; A-F only)
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.

Music (Mus)

School of Music

College of Liberal Arts

Mus 0901. Junior Recital. (0 cr; SP–Music major; concurrent registration in applied music, #A-F only)
Preparation for junior recital. Student will be supervised by major applied instructor.

Mus 0951. Senior Recital. (0 cr; SP–Music major; concurrent registration in applied music, #A-F only)
Preparation for senior recital. Student will be supervised by major applied instructor.

Mus 1001. Fundamentals of Music. (3 cr; SP–For non-music majors)
Study of music notation and fundamental concepts underlying musical structure. Intervals, clefs, chords, scales, cadences, harmonic analysis; rhythm and meter. Emphasis on active participation: playing the piano, singing, clapping rhythms, aural perception. Weekly lab assignments in vocal and piano performance.

Mus 1021. Introduction to Music. (3 cr; SP–3021)
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. (1 cr)
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. (1 cr [max 2 cr])
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; SP–Music major; A-F only)
For freshman music majors with limited keyboard background. Functional skills such as reading, transposing, harmonizing, improvising, and playing by ear, along with keyboard theory, technique, and repertoire.

Mus 1155. Keyboard Skills I. (2 cr; SP–Undergrad music keyboard major or #A-F only)
For freshman keyboard majors and other music majors with extensive keyboard background. Emphasis on reading, transposing, harmonizing, improvising, and playing by ear, along with keyboard theory, technique, and music learning skills.

Mus 1156. Keyboard Skills II. (2 cr; SP–Undergrad music keyboard major or #A-F only)
For freshman keyboard majors and other music majors with extensive keyboard background. Emphasis is reading, transposing, harmonizing, improvising, and playing by ear, along with keyboard theory, technique, and music learning skills.

Mus 1260. Voice Class. (2 cr [max 4 cr]; SP–Basic musicianship for learning and performing simple songs)
The fundamentals of speech and singing including information about the vocal instrument, the vocal process, vocal techniques, and how to learn and perform three simple songs.

Mus 1471. Guitar: Class Lessons I. (2 cr; A-F only)
Fundamentals for the beginning guitarist; progressive development of skills. Basic strumming techniques, harmonizations in basic keys. Students must furnish an acoustic guitar.

Mus 1472. Guitar: Class Lessons II. (2 cr; SP–1471 or #A-F only)
Fundamentals for the beginning guitarist; progressive development of skills. Advanced strumming techniques, bass runs, finger-picking strums. Students must furnish acoustic guitar.

Mus 1501. Foundations of Musical Theory: Analysis and Ear-Training I. (3 cr; SP–Diagnostic test administered by the School of Music; A-F only)
Study the basics of common-practice tonal harmony and part-writing, the basics of music analysis in a variety of contexts, and the foundations of ear-training and sight singing.

Mus 1502. Foundations of Musical Theory, Analysis, and Ear-Training II. (4 cr; SP–1501 or diagnostic test administered by the School of Music; A-F only)
Study the basics of common-practice tonal harmony and part-writing, the basics of music analysis in a variety of contexts, and the foundations of ear-training and sight singing.

Mus 1801. Music, Society, and Cultures. (3 cr; A-F only)
Study rural, urban, and tribal musics throughout the world with the interdisciplinary methods of humanities and social sciences. World-wide distribution of musical creativity with audio and video documentation.
Mus 1804. World Music. (3 cr)
Music in universal perspectives. Traits, styles, genres, instrument design, and cultural factors of usage and function. Listening awareness through aural analysis and culture comparison. World-wide distribution of musical creativity with audio and video documentation.

Mus 1902. Topics: Freshman Seminar. (1 cr; SP–Fr or no more than 36 cr; A-F only)
Topics specified in Class Schedule.

Mus 1905. Topics: Freshman Seminar. (3 cr; SP–Fr or max 36 cr; A-F only)
Topics specified in Class Schedule.

Mus 1907W. Topics: Freshman Seminar. (3 cr; SP–Fr or no more than 36 cr; A-F only)
Topics specified in Class Schedule.

Mus 1910W. Topics: Freshman Seminar. (3 cr; SP–Fr or no more than 36 cr; A-F only)
Topics specified in Class Schedule.

Mus 3001W. Foundations of Musical Thought. (4 cr; A-F only)
Develop a range of strategies for listening to music and for thinking about music in an informed way. Wide range of musical styles including classical, ethnic, and popular idioms.

Mus 3021. Introduction to Music. (3 cr)
Survey of European and American “art” and “popular” music in the context of those cultures; aural analyses of musical styles and forms.

Mus 3027. Lyric Song in Medieval Culture. (3 cr)
Courtly, paraliturgical, and popular song traditions from 1100 to 1500 in spec c contexts: castle, palace, monastery, nunnery, cathedral, theater, tavern, street, and countryside. Social roles of men and women as patrons, performers, poets, composers. Write historical narratives and recreate medieval performance traditions.

Mus 3029. Music in the 20th Century. (3 cr)
Music in European and American culture from 1890s to present. Emphasizes interactions between high art, popular and ethnic musics, contributions of men and women as composers and performers, concurrent developments in the arts, dance, and literature, and music as social commentary.

Mus 3045. The Avant-Garde. (3 cr; A-F only)
Introduction to recent music. Composers of the American tradition: Cage, Crumb, Penderecki, etc. In-class and out-of-class attendance.

Mus 3150. Accompanying Skills. (1 cr; max 8 cr; SP–Fr or piano or organ major or # A-F only)
A practical introduction to every facet of the art of piano as an accompaniment and collaborative instrument.

Mus 3220. Chorus. (1 cr; max 8 cr; SP–Choral and/or instrumental music background; audition, #)
Includes the University Women’s Chorus, Men’s Chorus, Concert Chor, and Choral Union. Choruses 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.

Mus 3241. Vocal Literature I: German Lieder. (1 cr; SP–Vocal performance or accompanying major; 2 yrs of music theory and music history; A-F only)
An exploration of the German Lied, its origins, composers, and development. Musical and textual analysis of representative works, examination of the poetry which serves as song text, and brief survey of poets in the German Romantic period. Extensive listening assignments.

Mus 3242. Vocal Literature II: French Melodie. (1 cr; SP–Vocal music or accompanying major; 2 yrs of music theory and music history; A-F only)
The French Melodie, its origins, composers, and development. Musical and textual analysis of representative works, examination of the poetry which serves as song text, and brief survey of the French Symbolist poets. Extensive listening assignments.

Mus 3261. Italian Diction for Singers. (1 cr; SP–Voice or choral music major; concurrent regis in applied voice; A-F only)
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.

Mus 3262. English Diction for Singers. (1 cr; SP–Voice or choral music major; concurrent regis in applied voice; A-F only)
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.

Mus 3263. German Diction for Singers. (1 cr; SP–Voice or choral music major; concurrent regis in applied voice; A-F only)
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.

Mus 3264. French Diction for Singers. (1 cr; SP–Voice or choral music major; concurrent regis in applied voice; A-F only)
Principles and practice of French lyric diction for classical vocal music. Transcriptions of French melodie 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.

Mus 3331. Jazz Improvisation I. (2 cr; SP–Music major or # A-F only)
Romdiments; 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.

Mus 3332. Jazz Improvisation II. (2 cr; SP– # A-F only)
Transposition; analysis; improvisation on blues in three major keys and standard American popular jazz compositions from swing era to early bebop; II-V7-I progressions; ear training.

Mus 3340. Jazz Ensemble. (1 cr [max 8 cr]; SP–Audition, # A-F only)
A 20-member performing organization covering significant jazz compositions and arrangements written specifically for this medium.

Mus 3350. Jazz Combo. (1 cr [max 8 cr]; SP–Audition, # A-F only)
A performance laboratory class with emphasis on improvisation and learning the jazz vocabulary. A minimum of two public performances is required each semester.

Mus 3351. Jazz Piano Class I. (2 cr; SP–1152 or #; A-F only)
Keyboard skills development in chord-style symbolology, reading chord progressions, translating chord symbols into formula voicings, expanded harmonies,ural development, jazz style “comping.”

Mus 3352. Jazz Piano Class II. (2 cr; SP–1152 or # A-F only)
Keyboard skills development in chord-style symbolology, reading chord progressions, translating chord symbols into formula voicings, expanded harmonies,ural development, jazz style “comping.”

Mus 3390. Jazz Singers. (1 cr [max 10 cr]; SP–Audition, # A-F only)
Study and performance of representative vocal jazz literature.

Mus 3401. Basic Conducting. (2 cr; SP–1502, music major; A-F only)
Beginner course in basic conducting techniques and role of the conductor.

Mus 3410. University Wind Bands. (1 cr [max 8 cr]; SP–Audition, # A-F only)
Wind ensemble and symphony bands perform standard and contemporary literature; concerts and tour appearances. Players from all colleges may participate.

Mus 3420. Orchestra. (1 cr [max 8 cr]; SP–Audition, # A-F only)
An orchestra for players who are not music majors and/or unable to register for University Orchestra. Standard chamber orchestra and string orchestra literature rehearsed and performed.

Mus 3440. Chamber Ensemble. (1 cr [max 8 cr]; SP– # A-F only)
Performance of chamber music; duos, trios, quartets, quintets, and other ensemble combinations for instruments and voices.

Mus 3480. Marching Band. (1 cr [max 4 cr]; SP– # A-F only)
A 250-member performing organization open to players from all colleges. Performs at University football games and other athletic functions.

Mus 3501. Theory and Analysis of Tonal Music III. (4 cr; SP–1501, 1502; A-F only)
Harmony and voice-leading continued. Diatonic and basic chromatic chords; form; analysis of music from the 18th and 19th centuries; ear-training and sight-singing.

Mus 3502. Theory and Analysis of Tonal Music IV. (4 cr; SP–3501 or # A-F only)
Harmony and voice-leading continued. Chromatic tonal practices. Form, including sonata, rondo, variations, and other standard categories of tonal composition. Analysis of music from the 18th and 19th centuries. Ear-training and sight-singing.

Mus 3508. Review of Tonal Theory. (3 cr; SP–Theory placement exam; A-F only)
Fast-paced review of 1502 and 3501 focusing on diatonic and basic chromatic procedures. Emphasis on part-writing and analysis.

Mus 3511. Ear-Training and Sight-Singing IV. (1 cr; SP–3501 or 3518 or appropriate score on Ear-Training Placement Exam; A-F only)
Melodic, harmonic, and rhythmic dictation; sight-singing; clef reading. Emphasis on chromatic harmony.

Mus 3518. Review of Ear-Training and Sight-Singing. (1 cr; SP–Theory Placement Exam; A-F only)

Mus 3551. Composition Class. (2 cr; SP–3532, # A-F only)
Introduction to 20th century techniques, styles and methodologies of composition. Five principal compositions to be written, plus additional smaller pieces in various forms and combinations. Directed listening and analysis, with emphasis on control of basic craft elements while cultivating original approaches to musical creation.

Mus 3601W. History of Western Music I. (3 cr; SP–1151 or 1155, 1501 or # A-F only)
History of the European art-music tradition and its social contexts from antiquity to 1700: composers, styles, structures, and social institutions.

Mus 3602W. History of Western Music II. (3 cr; SP–1151 or 1155, 1501 or # A-F only)
History of the European art-music tradition and its social contexts from 1700 to 1850: composers, styles, structures, and social institutions.

Mus 3603W. History of Western Music III. (3 cr; SP–1151 or 1155, 1501 or # A-F only)
History of European and American art and popular music traditions from 1850 to the present: composers, styles, structures, and social institutions.
Mus 3993. Directed Studies. (1-4 cr; max 10 cr; SP–#; A-F only)
Guided individual reading or study.

Mus 3995. Major Project. (1 cr; SP–Undergrad music major or A-P only)
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.

Mus 5101. Piano Pedagogy I. (2 cr; SP–6 cr in MusA 1301 or MusA1401 or #)
Demonstration and discussion of teaching techniques, methods, and materials for group and individual instruction at the elementary, early intermediate, and late intermediate levels.

Mus 5102. Piano Pedagogy II. (2 cr; SP–8 cr in MusA 1301 or MusA 1401 or #)
Demonstration and discussion of teaching techniques, methods, and materials for group and individual instruction at the elementary, intermediate, and late intermediate levels.

Mus 5111. Advanced Piano Pedagogy I. (2 cr; SP–5102 or grad piano major or A-F only)
Demonstration and discussion of teaching techniques, methods, and materials for group and individual instruction at the intermediate and early advanced levels.

Mus 5112. Advanced Piano Pedagogy II. (2 cr; SP–5101 or grad piano major or A-F only)
Demonstration and discussion of teaching techniques, methods, and materials for group and individual instruction at the intermediate and early advanced levels.

Mus 5120. Piano Pedagogy Practicum. (1 cr [max 4 cr]; SP–5101-5102 or 5111-5112 or A-F only)
Supervised teaching of a piano pupil or group of pupils for one semester (minimum 12 weeks for one half-hour per week). Supervising instructor will assist with selection of materials, periodic consultation, and observation (live or video taped) of selected lessons.

Mus 5131. Advanced Keyboard Skills I. (2 cr; SP–3502, or grad or A-F only)
Diatonic and chromatic harmony at the piano.
Realization of figured basses of the 17th and 18th centuries. Performance of choral, orchestral, and chamber music of the 17th to 20th centuries, from open score using all clefs.

Mus 5132. Advanced Keyboard Skills II. (2 cr; SP–3502, or grad or A-F only)
Diatonic and chromatic harmony at the piano.
Realization of figured basses of the 17th and 18th centuries. Performance of choral, orchestral, and chamber music of the 17th to 20th centuries, from open score using all clefs.

Mus 5141. Piano Literature. (2 cr; SP–12 cr of MusA 1301 or MusA 1401 or A-F only)
Introductionary survey of representative keyboard literature from the Baroque to the mid-20th century. Study of typical forms, style features, technical issues, and performance practices for each period.

Mus 5150. Body Awareness in Activity: The Alexander Technique for Musicians. (2 cr; max 4 cr)
Alexander technique with specific applications to music performance. Emphasis on body/mind awareness to promote technical ease and freedom.

Mus 5151. Organ Literature I. (3 cr; SP–3502, 3503, or or grad or A-F only)
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.

Mus 5152. Organ Literature II. (3 cr; SP–3502, 3503, or or grad or A-F only)
Organ literature from the 18th century to the mid-19th century. Influence of organ design of various periods and national schools on the literature and its performance.

Mus 5160. Instrumental Accompanying Skills and Repertoire. (2 cr [max 4 cr]; SP–Accomp major or A-F only)
Performance and accompanying skills particular to orchestral reductions and non-sonata instrumental accompanying. Repertoire to include, but not be limited to, classical, and romantic string concertos, and “encore” pieces.

Mus 5170. Vocal Accompanying Skills and Repertoire. (2 cr [max 4 cr]; SP–Grad and Italian diction, accomp or grad major; A-F only)
Performance class (Lieder, melodie, opera) with emphasis on coaching techniques and performance skills of pianists and singers.

Mus 5181. Advanced Piano Literature I. (2 cr; SP–Grad piano maj or A-F only)
Literature for piano from late Baroque period to mid-20th century.

Mus 5182. Advanced Piano Literature II. (2 cr; SP–Grad piano major or A-F only)
Literature for piano from late Baroque period to mid-20th century.

Mus 5230. Chorus. (1 cr [max 8 cr]; SP–Choral and/or instrumental music background; audition, #)
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 choral repertories. Concerts include touring, and collaborative campus and community performances.

Mus 5240. Chamber Singers. (1 cr [max 8 cr]; SP–Audition, A-F only)
Mixed chorus of about 24 voices. Performances each semester of works for small choirs.

Mus 5241. Vocal Literature I. (1 cr; SP–12 cr in MusA 1304, grad music student or A-F only)
Vocal literature of major/minor composers from 17th century to present. Structure, style, performance practice.

Mus 5242. Vocal Literature II. (1 cr; SP–12 cr in MusA 1304 or MusA 1306, grad music major or A-F only)
Vocal literature of major and minor composers from 17th century to present; style, structure, and performance practice.

Mus 5250. Opera Workshop and Ensemble. (1 cr [max 8 cr]; SP–Audition, A-F only)
Preparation and performance of operatic arias, choruses, and scenes. Participation in fully staged or workshop productions of music theatre repertoire.

Mus 5260. Stage Movement and Acting for Singers. (1 cr [max 4 cr]; SP–Audition, A-F only)
Basic techniques of stage movement and acting styles, application to various forms of music theatre.

Mus 5270. Voice Practicum. (1 cr [max 2 cr]; SP–Undergrad sr vocal major or #)
Teaching voice class or individual students with peer and faculty feedback. Assist in class voice instruction or teach two students weekly in conjunction with two-one hour observation labs. May be taken for two semesters.

Mus 5271. Diction for Singers I. (2 cr; SP–12 cr of MusA 1304 or grad music major or A-F only)
Principles and techniques of singing in English. Italian, Spanish, German, and French. International Phonetic Association alphabet used.

Mus 5272. Diction for Singers II. (2 cr; SP–12 cr of MusA 1304 or grad music major or A-F only)
Principles and techniques of singing in English. Italian, Spanish, German, and French. International Phonetic Association alphabet used.

Mus 5275. Vocal Pedagogy I. (3 cr; SP–Sr vocal major or #)
Advanced study of mind/body preparations for singing, anatomy, physiology, and psychology of the vocal mechanism. Voice use and care, historical and contemporary pedagogy, learning theories, models and guidelines for teaching, instructional techniques, and diagnosing and solving vocal problems.

Mus 5276. Vocal Pedagogy II. (2 cr; SP–Sr vocal major or A-F only)
History of solo vocal performance; selection and preparation of beginning level solo repertoire; development of vocal performance skills (interpretation, expression, artistry), recital programming, and vocal career counseling.

Mus 5277. Vocal Workshop. (1 cr; SP–Music major or #; A-F only)
Short term vocal workshops address specific topics including voice science, pedagogy, and performance of vocal repertoire. One workshop focuses on class voice instruction.

Mus 5279. Group Voice: Performance/Pedagogy. (2 cr or SP–Performance only track: 2 cr per sem; performance/Pedagogy track: 3 cr per sem; upper div student or grad student, A-F only)

Mus 5280. Opera Theatre. (2 cr; max 16 cr; SP–Audition, A-F only)

Mus 5283. Choral Conducting Technique. (1 cr; SP–#)
Choral conducting, rehearsal techniques, interpretation of music.

Mus 5284. Choral Conducting I: Gregorian Chant Through Baroque Era. (3 cr; SP–A-F only)
Techniques and rehearsal procedures. Focus on music before 1750 including works by Lassus, Schütz, Bach, and Handel.

Mus 5285. Choral Conducting II: Classical Era to the Present. (3 cr; SP–A-F only)
Technique and rehearsal procedures. Focus on music after 1750 including works by Mozart, Haydn, Beethoven, Mendelssohn, Brahms, and Strauss.

Mus 5300. Jazz Rhythm Section Techniques. (1 cr [max 8 cr]; SP–#; A-F only)
Study and function of instruments in the jazz rhythm section. Bass line construction, voicings for piano and guitar, and style patterns for percussion.

Mus 5336. Jazz Arranging. (3 cr; SP–3502 or A-F only)
Beginning techniques of arranging for jazz combo and jazz ensemble; vocal and instrumental.

Mus 5340. Jazz Ensemble. (1 cr [max 6 cr]; SP–Audition, A-F only)
A 20-member performing organization covering significant jazz compositions and arrangements written specifically for this medium.

Mus 5341. Jazz Pedagogy. (2 cr; SP–A-F only)
Teaching methods of vocal and instrumental jazz improvisation, basic arranging techniques, and jazz history; bibliographies and materials.

Mus 5342. Jazz Theory. (2 cr; SP–3502 or #; A-F only)
Beginning techniques for basic chord construction, extended chords, and nomenclature in jazz idiom.

Mus 5390. Jazz Singers. (1 cr [max 10 cr]; SP–Audition, #; A-F only)
Study and performance of representative vocal jazz literature.

Mus 5410. University Wind Bands. (1 cr [max 8 cr]; SP–Audition, #; A-F only)
Wind ensemble and symphony bands perform standard and contemporary literature; concerts and tour appearances. Players from all colleges may participate.

Mus 5415. Literature for Band and Wind Ensemble. (2 cr; A-F only)
Ensemble literature for winds and percussion; analysis and study of repertoire from classical period to the present.

Mus 5420. Orchestra. (1 cr [max 8 cr]; SP–Audition, A-F only)
Symphony orchestra performs standard repertoire and major works with chorus; concerts and tour appearances. Players from all colleges may participate.
Mus 5421. Suzuki Violin Pedagogy I. (2 cr; SP–Violin major or #; A-F only)
Philosophy and teaching techniques of Japanese pedagogue Shinichi Suzuki and their applications in Western culture. Discussion, playing experience, and observation of children’s lessons in the MacPhail Center Suzuki Program.

Mus 5422. Suzuki Violin Pedagogy II. (2 cr; SP–5421 or #; A-F only)
Philosophy and teaching techniques of Japanese pedagogue Shinichi Suzuki and their applications in Western culture. Discussion, playing experience, and observation of children’s lessons in the MacPhail Center Suzuki Program.

Mus 5423. Suzuki Pedagogy Practicum. (1 cr [max 1 cr]; SP–[(5424 or 5425) grad music student or #; A-F only])
Supervised teaching of both individual and group lessons. Instructor provides periodic critiques from observation of live or videotaped lessons.

Mus 5424. Advanced Suzuki Violin Pedagogy I. (2 cr; SP–5422 or #; A-F only)
Intensive examination of Suzuki techniques for intermediate and advanced violin students in Western society. Discussion, playing experience, observation of children’s lessons in the MacPhail Center Suzuki Program, and practical teaching experience.

Mus 5425. Advanced Suzuki Violin Pedagogy II. (2 cr; SP–5424 or #; A-F only)
Intensive examination of Suzuki techniques for intermediate and advanced violin students in Western society. Discussion, playing experience, observation of children’s lessons in the MacPhail Center Suzuki Program, and practical teaching experience.

Mus 5426. Final Project in Suzuki Pedagogy. (1 cr; SP–Grad music student in Violin Performance and Suzuki Pedagogy Program; A-F only)
Research project.

Mus 5427. Violin Pedagogy I. (1 cr; SP–Violin or viola major or #; A-F only)
Private teaching of violin students at beginning, intermediate, and advanced levels. Discussion and demonstrations of pedagogical techniques.

Mus 5428. Violin Pedagogy II. (2 cr; SP–Violin or viola major or #; A-F only)
Private teaching of violin students at beginning, intermediate, and advanced levels. Discussion and demonstrations of pedagogical techniques.

Mus 5430. Concerto Grosso Ensemble. (1 cr [max 8 cr]; SP–Audition; #; A-F only)
Study and performance of string orchestra and small chamber orchestra literature.

Mus 5440. Chamber Ensemble. (1 cr [max 8 cr]; SP–Audition; #; A-F only)
Performance of chamber music; duos, trios, quartets, quintets, and other ensemble combinations for instruments and/or voices.

Mus 5450. Orchestral Repertoire. (1 cr [max 3 cr]; SP–#; A-F only)
Investigation of practical and performance problems in standard orchestral repertoire with regard to style and interpretation.

Mus 5464. Cellos Pedagogy. (2 cr; A-F only)
Concentrated study of various teaching methods. Provides students with the strategies for teaching cello privately, develops analytical skills, and increases knowledge of cello repertoire. For practical application in conjunction with string technique course.

Mus 5466. Guitar Pedagogy. (2 cr; SP–Guitar principal or major or #; A-F only)
Historical survey of methods and etudes from late 18th century to present, reflecting variety of content and approach. Works by Aguado, Sor, Giuliani, Tarrega, Segovia, Carlevaro, Duncan, Iznaola, Dodgnson, and Brindle.

Mus 5470. Windwood Chamber Ensemble. (1 cr [max 8 cr]; SP–Audition; #; A-F only)
Chamber music performance using homogeneous or mixed combinations of woodwind instruments.

Mus 5471. Woodwind Literature and Pedagogy I. (3 cr; SP–Music major or #; A-F only)
A study of major teaching materials for the five woodwind instruments including methods, duets, and solos used primarily for pedagogical reasons.

Mus 5472. Woodwind Literature and Pedagogy II. (3 cr; SP–Music major or #; A-F only)
A study of chamber music involving one or more woodwind instruments, which may include additional instruments such as piano, strings, and/or voice.

Mus 5473. History and Acoustics of Single Reed Instruments. (2 cr; SP–Music major or #; A-F only)
Study of clarinet and saxophone history and literature, mechanical design and development, acoustics, modern schools of performance, selected teaching and performance techniques.

Mus 5480. University Brass Choir. (1 cr [max 8 cr]; SP–Audition, #)
The University Brass Choir is an ensemble of 16 brass and percussion players exploring unique literature that spans 400 years. From the rich antiphonal music of Giovanni Gabrieli (1557-1617) to the works of the 20th century, The Brass Choir performs in Twin Cities churches and concert halls.

Mus 5481. Trumpet Pedagogy. (2 cr; SP–Sr or grad in music or #; A-F only)
Principles of trumpet pedagogy. Discussion of literature, history, and current teaching aids.

Mus 5485. Transcription for Winds. (2 cr; SP–3502 or #; A-F only)
Principles of manuscript music and examination of transcription. Transcription projects with score and parts. Smaller projects that involve arrangements and original compositions.

Mus 5490. Percussion Ensemble. (1 cr [max 10 cr]; SP–#; A-F only)
Practice and performance of standard and contemporary compositions for percussion instruments in various combinations.

Mus 5491. Percussion Literature I. (2 cr; SP–Jr or Sr or grad or #; A-F only)
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.

Mus 5492. Percussion Literature II. (2 cr; SP–Jr or Sr or grad or #; A-F only)
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.

Mus 5501. Intensive Theory and Analysis of 20th-Century Music. (4 cr; SP–3502 or #; A-F only)
Designed for music majors only, the course is comprised of an intensive introduction to the theory and analysis of art music in various styles developed during the 20th century.

Mus 5533. Music since 1945. (3 cr; SP–3502, #; A-F only)
Examines procedures and techniques of music composed since 1945. Integral serialism, sound mass, electronic music, indeterminacy, improvisation, and minimalism in the works of Babbitt, Ligeti, Davidovsky, Oliveros, Cage, Riley, and Reich.

Mus 5541. Counterpoint I. (3 cr; SP–3501, 3511 or #; A-F only)
Practical writing in polyphonic styles of Renaissance and Baroque and species counterpoint, canonic and fugal, and other imitative procedures. Study representative forms: motets, ricercars, and choral-based idioms. Analysis of works by Lassus, Palestrina, Victoria, Purcell, Buxtehude, Fischer, and Bach.

Mus 5542. Counterpoint II. (4 cr; SP–5541; A-F only)
Advanced writing in three and more voice polyphonic styles of Renaissance and Baroque. Analyze works of such composers as Lassus, Palestrina, and others; emphasis on canonic and fugal procedures.

Mus 5550. Composition. (2 cr [max 8 cr]; SP–3502 or equiv, 3551 or grad, #; A-F only)
Concepts of individual compositional style in a post-tonal idiom. Exploration of a variety of forms, performing forces, and techniques.

Mus 5561. Orchestration I. (3 cr; SP–3502; A-F only)
Scoring techniques for ensembles in combination and full orchestra; year-long course. Study of representative works from 18th through 20th centuries.

Mus 5562. Orchestration II. (3 cr; SP–5561; A-F only)
Scoring techniques for ensembles in combination and full orchestra; year-long sequence. Score study of representative works from 18th through 20th centuries.

Mus 5571. Schenkerian Analysis for Performers. (3 cr; SP–3502; A-F only)
Theory/analysis of tonal music using principles developed by Henrich Schenker. Basic concepts/notation, their application to excerpts/short pieces from 18th/19th centuries.

Mus 5572. Chromaticism in Tonal Music. (3 cr; SP–3502)
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 5591. Electronic Music: History, Literature, Principles. (3 cr; SP–#; A-F only)
In-depth survey of electroacoustic music repertoire, from tape/analog music through computer-generated compositions. Basic principles of acoustic/electronic sound generation/manipulation, and digital signal processing techniques. Introduction to programming languages for digital sound synthesis. Work with editing software and MIDI applications.

Mus 5592. Digital Music Synthesis and Processing Techniques. (3 cr; SP–5591 or #; A-F only)
Study of specific DSP topics such as filtering, formant synthesis, reverberation techniques, and additive synthesis. Work with interactive MIDI applications.

Mus 5597. Music and Text. (3 cr; SP–3502; A-F only)
Designed for music majors only, this course gives an introduction to the analysis of music with texts such as art song and opera.

Mus 5611. Resources for Music Research. (2 cr; SP–3603; A-F only)
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.

Mus 5620. Topics in Opera History. (3 cr [max 6 cr]; SP–Grad music major or #; A-F only)
Through the study of specific operas, students will examine the ways in which intersections of geography, politics, and musical style influenced and perpetuated operatic production within specific geographical and chronological boundaries. Periods/countries will vary each semester.

Mus 5644. Music in 20th-Century American Culture. (3 cr; SP–3603, 5501 or #; A-F only)
Stylistic and cultural bases of cultivated and vernacular traditions and their transitions. Topics include folk and ethnic musics, ragtime, city blues and jazz, rock, musical theater, impact of technology, modernism, nationalism, new accessibility.

Mus 5647. 20th-Century European/American Music. (3 cr; SP–3603 or equiv, 5501 or equiv, 12 undergr cr in music history)
Emphasizes major artistic movements, stylistic turning points, social roles of music. Interactions between high and art popular, ethnic musics, contributions of men and woman as composers and performers.

Mus 5658. History of the Symphony in the 20th Century. (3 cr; SP–3603, 5501 or #; A-F only)
History of symphony (and related genres) in Europe and America, ca. 1890 to present. Changing aesthetic concerns, structural, harmonic, and timbral innovations. Sociocultural contexts; analysis and criticism.
Music Applied (MusA)

School of Music

College of Liberal Arts

Mus 5666. Stravinsky. (3 cr; SP-5502, 12 cr music history; A-F only)
Analysis and criticism of representative works; aesthetic concerns as expressed in writings of Stravinsky and others; influence upon European and American composers; biographical issues and contributions to artistic life, particularly the ballet.

Mus 5668. Beethoven's Symphonies. (3 cr; SP-3603, A-F only)
Analytical overview of selected movements from Beethoven's symphonies. Principles of sonata analysis (norm and deformation); introduction to wider contexts of interpretation and understanding (generic, expressive, social).

Mus 5804. Folk and Traditional Musics: Selected Cultures of the World. (3 cr; SP-1801 or 1804 or music grad or #A-F only)
A study of selected music traditions from 5 to 7 world cultures. Genres, social institutions, concepts, styles, instruments, and usages.

Mus 5950. Topics in Music. (1-4 cr [max 15 cr])
Each offering focuses on a single topic. Topics specified in Class Schedule.

Mus 5993. Directed Studies. (1-4 cr [max 12 cr]; SP-#, A-F only)
Guided individual reading or study.
MusA 5411. Clarinet—Secondary.
MusA 5413. Saxophone—Secondary.
MusA 5415. French Horn—Secondary. (2-4 cr; SP–A)
MusA 5416. Trumpet—Secondary.
MusA 5417. Trombone—Secondary.
MusA 5418. Baritone—Secondary.
MusA 5419. Tuba—Secondary.
MusA 5421. Percussion—Secondary.
MusA 5423. Guitar—Secondary.

Music Education (MuEd)

School of Music
College of Liberal Arts

MuEd 1201. Introduction to Music Education. (1 cr; A-F only)
Orientation to the profession of music education through in-school observations, readings, presentations, and self-reflection. Introduction to technology for music educators.

MuEd 1801. Introduction to Music Therapy. (2 cr; A-F only)
Methods, materials, and applications of music therapy in various clinical settings with emphasis on field observation.

MuEd 3301. Teaching Elementary Vocal and General Music. (3 cr; SP-Music ed major; A-F only)
Methods, materials, curriculum development, principals of learning, the child voice, rhythm, music reading, history, appreciation, listening, creativity, classroom instruments, and applications of technology for elementary school classroom music.

MuEd 3302. Teaching Secondary General Music. (3 cr; SP-Music ed major or #; A-F only)
Methods, materials, curriculum, and principles of learning. Strategies for teaching students in secondary schools to sing, play, create, listen to, and evaluate music. Interdisciplinary connections; the adolescent voice; guitar instruction; applications of technology; peer and field teaching.

MuEd 3350. Student Teaching in Classroom Music. (4-8 cr [max 8 cr]; SP-Music ed major or #; A-F only)
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 3415. Choral Conducting and Methods I. (3 cr; SP-Music ed major or music therapy major or #; A-F only)
Development of basic choral conducting skills and rehearsal techniques; diction for singing; repertoire and arranging for various choral ensembles.

MuEd 3416. Choral Conducting and Methods II. (3 cr; SP-Music ed major or #; A-F only)
Development of choral conducting skills and rehearsal techniques; emphasizes interpretation of choral compositions; methods, materials, and curriculum for school choral ensembles; diction for singing.

MuEd 3450. Student Teaching in Vocal Music. (4-8 cr [max 8 cr]; SP-Music ed major, #; A-F only)
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 3502. String Techniques and Teaching. (3 cr; SP-Music ed major or #; A-F only)
Playing experience on orchestral string instruments; historical and acoustical background; scoring for strings; principles of improvisation; basic concepts of teaching; methods and materials; techniques of individual and class instruction.

MuEd 3503. Woodwind Techniques and Teaching. (3 cr [max 3 cr]; SP-Music ed major or #; A-F only)
Playing experience on instruments of the woodwind family; historical and acoustical background; scoring for brasses; principles of improvisation; basic concepts of teaching; methods and materials; class instruction.

MuEd 3504. Brass Techniques and Teaching. (3 cr; SP-Music ed major or #; A-F only)
Playing experience on instruments of the brass family; historical and acoustical background; scoring for brasses; principles of improvisation; basic concepts of teaching; methods and materials; class instruction.

MuEd 3505. Percussion Techniques and Teaching. (3 cr; SP-Music ed major or #; A-F only)
Playing experience on percussion instruments; historical and acoustical background; scoring for percussion; principles of improvisation; basic concepts of teaching; methods and materials; techniques of individual and class instruction.

MuEd 3516. Instrumental Music Methods. (3 cr; SP-Music ed major; A-F only)
Techniques for administering a school instrumental music program; emphasis on rehearsal techniques, literature, and materials for school use; school-based experiences; orchestration and arranging.

MuEd 3550. Student Teaching in Instrumental Music. (4-8 cr [max 8 cr]; SP-Music ed major, #; A-F only)
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 3800. Introduction to Clinical Music Therapy Practice. (4 cr; SP-Music therapy major or #; A-F only)
Introduction to lab and field studies of music therapy and music behavior. Pre-internship experiences in health, welfare, recreational, and educational settings.

MuEd 3801. Psychology of Music. (3 cr; SP-Psy 1001 or Psy 3604 or #; A-F only)
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.

MuEd 3804. Applications of Music Therapy I: Music Therapy for Children in Rehabilitative Settings. (4 cr; SP-Music therapy major, #; A-F only)
Examination of specific techniques in quantification of study of music behavior; projects using behavioral observations.

MuEd 3805. Applications of Music Therapy II: Music Therapy in Long Term Care and Psychiatric Care. (4 cr; SP-Music therapy major or #; A-F only)
Methods and materials for music therapy in school and hospital settings; designing and implementing programs for severely and moderately handicapped children and adults.

MuEd 3806. Preparing for a Music Therapy Career. (4 cr; SP-Music therapy major or #; A-F only)
Identify and explore current controversies, issues, and values encountered in music therapy. Explore and analyze counseling processes and techniques. Students are placed in a health care facility for the term to gain pre-internship experience.

MuEd 3835. Music Therapy Internship. (12 cr; SP-Music therapy major, #; S-N only)
Six-month resident internship in music therapy at an affiliated, approved hospital or clinic.

MuEd 5011. Music in the Elementary Classroom Curriculum. (2 cr; SP-Mus 1001, elem ed major grad)
Overview of the fundamentals of music, methods, and materials for incorporating singing, rhythmic activities, classroom instruments, movement, listening, appreciation, and creation into the context of classroom curriculum.
Course Descriptions

MuEd 5112. Research in Music Education: Techniques. (3 cr; SP–Grad music ed major or A-F only)
Methodological techniques employed in investigating and reporting music education problems; proposal development; bibliographic skills involved in conducting a significant review of related research.

MuEd 5115. Research in Music Education: Measurement. (3 cr; A-F only)
Assessment of music behaviors, including test design, interpretation of test results, and evaluation and reporting of student achievement; published tests in music; uses of assessment and measurement in the classroom and in research.

MuEd 5211. Foundations of Music Education. (3 cr; A-F only)
An overview of the historical, philosophical, and psychological foundations of music education.

MuEd 5313. Youth Music: Preferences, Influences, and Uses. (2 cr; A-F only)
Youth music preferences and their determinants; how music influences youth behavior; students' and teachers' uses of commercial styles. Particularly appropriate for educators and parents.

MuEd 5433. Techniques and Materials: Choral Ensembles. (2 cr; SP–Music or music ed major or #; A-F only)
Research and literature on vocal and choral music education; choral curriculum issues; repertoire selection; rehearsal techniques.

MuEd 5506. Movement-Based Methods for Music Education. (2 cr; SP–Music or music ed major or #; A-F only)
Participation in movement activities; study of Dulcrobe philosophy and techniques; applications of movement to music education; examination of research.

MuEd 5611. Teaching Music With Related Arts. (2 cr; A-F only)
Methods and materials for teaching music in cultural context including other art forms.

MuEd 5647. Teaching the Percussion Instruments. (2 cr; A-F only)
Contemporary approaches for teaching percussion in the schools; development of curricular materials and practice in performance techniques.

MuEd 5655. New Dimensions in Music Education. (2 cr; A-F only)
Analysis of recent curricular trends and current issues.

MuEd 5664. Teaching Music on the Internet. (3 cr; A-F only)
Home page development techniques, investigation of software and materials, audio and video utilities, and research applications.

MuEd 5667. Computer-Based Music Instruction. (3 cr; SP–Music or music ed major or #; A-F only)
Design and development of computer applications for the music classroom. Creating interactive audio and video presentations for music theory, ear training, composition, analysis, music history, and appreciation.

MuEd 5668. Computerized Music Notation. (3 cr; max 6 cr)
Fundamentals of music notation and printing utilizing the computer, MIDI keyboards, and Finale software programs. Preparation of instrumental and vocal scores, part extraction and page layout. Basic techniques for sequencing and transcription.

MuEd 5750. Topics in Music Education. (1-4 cr; max 8 cr; A-F only)
Each offering focuses on a single topic. Topics specified in Class Schedule.

MuEd 5991. Independent Study. (1-4 cr; max 8 cr; SP–Music ed or music therapy major or grad, #; A-F only)
Independent study project organized by the student in consultation with the appropriate instructor.

Natural Resources and Environmental Studies (NRES)

Department of Forest Resources
College of Natural Resources

NRES 1001. Orientation and Information Systems. (1 cr; A-F)
Information on curriculum offerings, liberal education requirements, careers in natural resources and environmental fields, summer jobs and internships. Overview of computers and computer-based tools as they apply to natural resource and related coursework. Techniques for information retrieval.

NRES 1002. Freshman Seminar. (1-3 cr; QP–Fr; SP–Fr)
In-depth study of issues/topics related to natural resources and the environment. Topics vary and are announced each semester.

NRES 1041W. Natural Resources as Raw Materials. (3 cr)
Global and U.S. population trends. Role of natural resources as raw materials for industry and economic development. Environmental and economic trade-offs associated with raw material gathering, processing, and use. Implications of processing technologies, energy considerations.

NRES 1201. Conservation of Natural Resources. (3 cr; A-F only)
Natural resource conservation and its development in the United States; renewable resources and problems managing them; relationship of natural resource conservation and environmental management to basic ecological principles.

NRES 3000. Colloquium: Natural Resources and Environmental Studies. (1 cr; max 6 cr; A-F only)
Lectures from experts and discussion of current environmental topics/issues. Topics vary and are announced each semester. Meets with NRES 3000.

NRES 3001. Colloquium: Perspectives on Treaty Rights. (1 cr; A-F only)
Readings and class discussion about the nature of treaty rights reserved by indigenous Americans with respect to utilization of natural resources. Special emphasis on Midwest issues. This web-assisted course meets with NRES 3001.

NRES 3002. Colloquium: Exotic Plants and Animals. (1 cr; A-F only)
Current issues in exotic plants and animals. Lectures from experts, readings, discussion.

NRES 3003H. Honors Colloquium. (1 cr; SP–Fr or soph, CNR honors, #; A-F only)
Lectures from experts. Reading/discussion of current environmental topics/issues.

NRES 3011W. Ethics, Conflict, and Leadership in Resource Management. (3 cr)
Normative ethics/leadership considerations applicable to managing natural resources/environment. Readings, discussion.

NRES 3021. Plant Resource Management and the Environment. (3 cr; QP–Biol 3008 or EEB 3001 or FR 3104 or equiv; SP–55021; Biol 3407 or EEB 3001 or FR 3104 or equiv)
World vegetation management practices, extent, and implications. Emphasis on forest management, agriculture, and agroforestry; historical, current, and prospective practices; environmental and societal implications.

NRES 3051. Experience and Training in a Field Setting. (3 cr; QP–SP–A-F only)
Students provide an oral description and summary of their internship as well as a structured paper or project on a topic related to their experience. Topic is agreed upon in consultation with faculty adviser.

NRES 3061W. Water Quality: Management of a Natural Resource. (3 cr)
Biophysical water quality in the context of today’s management concerns. Active learning approaches, and global and ecological perspectives toward understanding the management of surface and groundwater resources.

NRES 3202W. Social Change: Environmental Dispute Resolution, Leadership, and Collaborative Partnerships. (3 cr; A-F only)
Theory/practice of leadership/personal effectiveness, planning/conflict management in natural resource/ environmental organizations. Readings, case studies, discussions, lectures.

NRES 3205. Field Ecology in NRES. (4 cr; QP–Biol 1009 or Biol 1201; Biol 3008 or EEB 3001 or FR 3104 or equiv; SP–Biol 1001 or Biol 1009; Biol 3407 or FR 3104 or equiv)
Field introduction to upland terrestrial, wetland, aquatic habitats of northern Minnesota; their ecological processes, aspects of management. Identification of common plants, animals, soils. Application of field techniques. Field-oriented group problem solving.

NRES 3206. Natural History of Costa Rica. (3 cr; SP–Biol 1009 or equiv; GPA of at least 2.50, #)

NRES 3241W. Natural Resource Policy and Administration. (3 cr; QP–ApEc 1101 or Econ 1101; SP–55241; ApEc 1101 or Econ 1101)
Basic concepts of political and administrative processes important to natural resource policy and program development. Focus on policy process, participants in policy development, and public programs. Use of case studies.

NRES 3245. Recreation Policy and Landscape-level Planning. (3 cr; QP–Fr or sr; completion of all lower div requirements in RRM; SP–55245; Fr or sr; completion of all lower div requirements in RRM; A-F only)
Broad themes of recreational land-use policy and planning in the United States. Selected historical and contemporary policy issues. Policy as product of social conflict over use of public resources. Landscape-level planning as means to implement policy and resolve social conflict.

NRES 3261W. Economics and Natural Resources Management. (3 cr; QP–ApEc 1101 or Econ 1101; SP–55261; ApEc 1101 or Econ 1101; A-F only)
Economic concepts and tools for natural resources management. Financial and economic valuation, assessment methods, and links to planning and management. Cash flow analysis, benefit cost analysis methods and examples.

NRES 3575. Wetlands Conservation. (3 cr; SP–5575)
Freshwater wetland classification, wetland biota, current and historical status of wetlands, and the value of wetlands. National, regional, and Minnesota wetlands conservation strategies and the ecological principles used in wetland management are emphasized.

NRES 3601. Our Home, Our Environment. (3 cr; A-F only)
Affects of people/homes on environment. Design/construction of homes. Reducing negative affects on environment. Sustainable design, construction, use of green materials, energy efficient appliances, maintaining healthy indoor air, conservation.

NRES 4062. Advanced Water Quality. (3 cr; SP–3061, EEB 4601, CE 4541) or #
Problem based approach to water quality assessment, designing a monitoring/communication program. Field/lab portions: conduct, interpret, and report water quality chemical, physical, and biological variables in an on-campus stream-wetland complex.
NRES 4101. Conservation of Plant Biodiversity. (3 cr; A-F only) Principles underlying measurement/conservation of plant biodiversity at individual, population, community levels. Case studies in management of biodiversity to restore or maintain ecosystem function.

NRES 4195W. Problem Solving in Natural Resources and Environmental Studies. (4 cr; OP-CNTR or [if NRES 5210, all NRES courses, 8 cr in area of concentration; if RRM: 5245, FR 5233; SP-CNTR or if NRES 4211, all core courses, 8 cr in area of concentration; if RRM: 5245, FR 4311, FR 4232; A-F only]) Applying problem-solving skills in policy planning and managerial situations. Working with 'real world' client to produce publishable technical report.

NRES 4202H. Honors Seminar. (1 cr; OP-NRES upper div honors, §; SP–NRES upper div honors, #; A-F only) Topics presented by faculty, students, guest speakers. Lecture/discussion.

NRES 4211. Survey, Measurements, and Modeling in Natural Resources. (3 cr; OP–[Math 1124 or Math 1251], Stat 3011; SP–[Math 1124 or Math 1271, Stat 3011] Survey design, data collection/analysis, model development/use. Methods encompass ecological/ economic interests.

NRES 4293. Directed Study. (1-5 cr [max 12 cr] OP–#; SP–#) Student selects and conducts a study of or project on a topic of personal interest in consultation with faculty mentor. The course is documented by initial proposal and reports of accomplishment.

NRES 4295W. GIS for Problem Solving in Environmental Science and Management. (4 cr; OP–FR 5130 or #; SP–FR 4311 or #; A-F only) Application of spatial data inventory and analysis in complex environmental planning problems. Experience with common spatial data collection and database development methods, including GIS, DLG, TIGER, and NWI data, as well as spatial analysis. Topics identified by nonuniversity partners.

NRES 4395. Natural Resources Planning. (4 cr; OP–NRES sr; SP–NRES sr; A-F only) Natural resource planning for multiple resource uses; techniques and models for evaluating and assessing the trade-offs among alternative management plans. Case studies and laboratory exercises.

NRES 4802H. Honors Research. (2 cr; OP–NRES upper div honors, #; SP–NRES upper div honors, #; A-F only) Independent research project supervised by faculty member.


NRES 4811. Natural Resources Interpretation. (3 cr; OP–# or or or or or; SP–# or or or or; A-F only) First-hand experience on interpretive talks, self-guided trails, brochure development, exhibit design, and nonformal teaching pedagogy. Master planning and evaluation provides skills for professional interpreters to work in private, state, or federal agencies.

NRES 5000. Colloquium: Natural Resources and Environmental Studies. (1 cr [max 6 cr] A-F only) Lectures from experts; readings and discussion of current environmental topics/issues. Topics vary. Meets with 3000.

NRES 5001. Colloquium: Perspectives on Treaty Rights. (1 cr [max 2 cr] A-F only) Readings and class discussion about the nature of treaty rights reserved by indigenous Americans with respect to utilization of natural resources. Special emphasis on Midwest issues. This web-assisted course meets with 3001.

NRES 5002. Colloquium: Restoration of Aquatic Systems. (3 cr; A-F only) Key concepts/techniques. Common factors in restoration projects. Threats to health of aquatic ecosystems.


NRES 5061. Water Quality: Management of a Natural Resource. (3 cr; OP–Grad-grd student or §; A-F only) Biophysical water quality in the context of today's management concerns. Active learning approaches, and global and ecological perspectives toward understanding the management of surface and groundwater resources.

NRES 5202. Social Change: Environmental Dispute Resolution, Leadership, and Collaborative Partnerships. (3 cr; OP–Grad student or §; A-F only) The philosophy, art, science, practice of leadership; its relationship to management, environmental ethics. Leadership models, traits, behaviors, style, group process. Development of personal leadership philosophy.

NRES 5241. Natural Resource Policy and Administration. (3 cr; OP–ApEc 1101 or Econ 1101, grad or §; SP–3241; ApEc 1101 or Econ 1101, grad or §; A-F only) Broad themes of recreational land-use policy and planning in the United States. Selected historical and contemporary policy issues. Policy as product of social conflict over use of public resources. Landscape-level planning as means to implement policy and resolve social conflict.

NRES 5261. Economics and Natural Resources Management. (3 cr; OP–ApEc 1101 or Econ 1101, grad or §; OP–3261; ApEc 1101 or Econ 1101, grad or §; A-F only) Economic concepts and tools for natural resources management. Financial and economic valuation, assessment methods, and links to planning and management. Cash flow analysis, benefit cost analysis methods and examples.

NRES 5575. Wetlands Conservation. (3 cr; OP–§ or grad or §; SP–§; 3575; or grad or §) Freshwater wetland classification, wetland biota, current and historic status of wetlands, and the value of wetlands. National, regional, and Minnesota wetlands conservation strategies and the ecological principles used in wetland management are emphasized.

NRES 5703. Agroforestry: Role in Watershed Management. (2 cr; OP–[Biol 1009 or Biol 1011]; [Chem 1001 or Chem 1051]; SP–# or # or # or # or #) Agroforestry practices, what they are, their intended purpose. Production/watershed protection benefits derived from such practices. Role of agroforestry in sustainable development. Agroforestry examples/case studies presented from North America, developing countries.

NRES 5704. Operations and Management of Coastal Areas. (3 cr; A-F only) Dynamic systems, chart reading, dead reckoning, fixes, tides, currents, anchoring. Theory based on observation of celestial bodies.


Nav 2000. Professional Training in Naval Science. (1 cr [max 1 cr] OP–Enrolled in NROTC; SP–Fresh enrolled in NROTC; S-N only) 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.


NROTC; S-N only)


Nav 3310. Evolution of Warfare. (3 cr; A-F only) 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 4000. Professional Training in Naval Science. (1 cr; max 1 cr) QP—Enrolled in NROTC; SP—enrolled in NROTC. 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 games and simulations. Classes and small group seminars on leadership and ethical issues with case studies.


Nav 4402. Leadership and Ethics. (3 cr; QP—Mgmt 3001; SP—A-F only) Junior officer career. 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.

Nav 4410. Amphibious Warfare. (3 cr; A-F only) Development of amphibious doctrine, its expansion in Pacific Campaigns of World War II. Detailed case studies of Tarawa, Iwo Jima, Okinawa illustrate amphibious planning.

Neuroscience (NSc)

College of Biological Sciences

NSc 5031W. Perception. (3 cr; QP—Psy 3031 or Psy 3051 or §SP—Psy 3031 or Psy 3051 or #) 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.

NSc 5034. Psychology of Vision. (3 cr; QP—Psy 3031 or grad or §SP—Psy 3031 or #) Analysis of the properties and biological bases of visual perception in humans and animals. Emphasis on color vision, visual sensitivity and adaptation, nerve cells and circuits in the eye, structure and function of the visual brain.

NSc 5037. Psychology of Hearing. (3-4 cr; QP—Psy 3031 or §SP—Psy 3031 or #) Biological and physical aspects of hearing, auditory psychophysics, theories and models of hearing, perception of complex sounds including music and speech, clinical and other applications.


NSc 5202. Computational Neuroscience II: Neuronal Systems and Information Processing. (3 cr; QP—Phsl 5201 or equiv, understanding of UNIX SP—Phsl NSc 5201 or equiv, understanding of UNIX) Comprehensive investigation of computational properties of single neurons and locally connected cell networks. Linear cable theory; compartmental modeling of single neuron properties; spatio-temporal interactions between synaptic inputs and neuronal dendritic trees; computational properties of passive and active dendritic spines and spine clusters; quantitative interpretation of whole-cell voltage-clamp data; network dynamics of locally connected cell networks.

NSc 5461. Cellular and Molecular Neuroscience. (4 cr; SP—#) A contemporary cellular and molecular approach to the study of the nervous system. Includes problem sets designed to teach important physiological concepts and critical thinking through original research papers. Required for first-year Neuroscience students and appropriate for other graduate students.

NSc 5462. Neuroscience Principles of Drug Abuse. (2 cr; QP—# SP—#) Current research on drugs of abuse; their mechanisms of action, characteristics shared by various agents, and neural systems affected by them.

NSc 5481. Invertebrate Neurobiology. (2 cr; SP—Ent 5480) Fundamental principles and concepts underlying cellular bases of behavior and “systems” neuroscience. Particular invertebrate preparations discussed.

NSc 5551. Itasca Cell and Molecular Neurobiology Laboratory. (4 cr; SP—Neuroscience grad or # A-F only) 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 neurobiology.

NSc 5561. Systems Neuroscience. (4 cr; SP—#5461; A-F only) Advanced principles of neural systems organization. Lecture/lab.

NSc 5561. Behavioral Neuroscience. (3 cr; QP—NSc major or minor or # SP—NSc major or minor or # A-F only) The neural coding and representation of movement parameters, and the neural mechanisms underlying higher order processes such as memorization, memory scanning, and mental rotation. Emphasis on experimental psychological studies in human subjects, single cell recording experiments in subhuman primates, and artificial neural network modeling.

NSc 5562. Introduction to Neuroscience I: From Molecules to Madness. (3 cr; QP—Phsl 3101, §Biol 3101; Bioc 3021 or 3331, SP—Phsl 3101, §Biol 3101; Bioc 3021 or Bioc 4331) Basic principles of cellular/molecular/neurobiology and nervous systems.

NSc 5611. Introduction to Neuroscience II: Biological Basis of Behavior. (3 cr; SP—Phsl 3102, §Biol 3102; NSc 3101 or Phsl 3101; SP—Phsl 3102, §Biol 3102; Bioc 3021 or NSc 3101 or Phsl 3101; A-F only) Organization of neural networks and subsystems underlying the sensory and motor aspects of behavior.

NSc 5612W. Introduction to Neuroscience II: Biological Basis of Behavior. (3 cr; SP—1801 or 3801, SP—Phsl 3102, §Biol 3102; NSc 3101 or Phsl 3101; SP—Phsl 3102, §Biol 3102; Bioc 3021 or NSc 3101 or Phsl 3101; A-F only) Organization of neural networks/subsystems underlying sensory/motor aspects of behavior. Writing intensive.

NSc 5615. Neurobiology Laboratory I. (1.5 cr; QP—Phsl 3105, §Biol 3101 or Phsl 3101 or §Phsl 3105; §Phsl 3105, §Biol 3105; Bioc 3021 or NSc 3101 or Phsl 3101 or §A-F only) Principles, methods, and laboratory exercises for investigating neural mechanisms and examining experimental evidence.

NSc 5615. Neurobiology Laboratory II. (1.5 cr; QP—Phsl 3115; NSc 3102 or Phsl 3102 or §SP—Phsl 3115; §Biol 3115; §Biol 3102 or NSc 3102 or Phsl 3102 or # A-F only) Principles, methods, and laboratory exercises for investigating neural mechanisms and examining experimental evidence.

NSc 4151. Advanced Topics in Neuroscience. (3 cr; QP—Bioc 5150, §Phsl 5150; Bioc 3021, Bioc Bioc 3021 or # SP—Phsl 4131; Bioc/NSc/Phsl 3101 or # A-F or # A-F only) 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.

NSc 4185. Itasca Summer Neurobiology Laboratory. (2 cr; SP—# A-F only) Concepts in cellular neuroscience. Basis of membrane properties, including ionic/molecular mechanisms of resting, action, and synaptic potentials. State-of-the-art equipment and contemporary techniques used to examine experimental evidence.

NSc 4793W. Directed Studies: Writing Intensive. (1-7 cr; max 1 cr) QP—# A-F only) no more than 7 cr of (4793, 4794, 4993, 4994) may count toward major requirements; SP—# A-F only) no more than 7 cr of (4793, 4794, 4993, 4994) may count toward major requirements; S-N only) Individual study of selected topics. Emphasis on readings, use of scientific literature. Writing intensive.

NSc 4794W. Directed Research: Writing Intensive. (1-7 cr; max 15 cr) QP—# A-F only) no more than 10 qtr cr of (5970, 5990) may count toward major requirements; SP—# A-F only) no more than 7 cr of (4793, 4794, 4993, 4994) may count toward major requirements; S-N only) Lab or field investigation of selected areas of research. Writing intensive.

NSc 4993. Directed Studies. (1-7 cr; max 7 cr) QP—# A-F only) no more than 10 qtr cr of 5970 and/or 5990 may count toward major requirements; SP—# A-F only) no more than 7 cr of 4993 and/or 4994 may count toward major requirements; S-N only) Individual study of selected topics with emphasis on selected readings and use of scientific literature.

NSc 4994. Directed Research. (1-7 cr; QP—# A-F only) no more than 10 qtr cr of 5970 and/or 5990 may count toward major requirements; SP—# A-F only) no more than 7 cr of 4993 and/or 4994 may count toward major requirements; S-N only) Lab or field investigation of selected areas of research.

Norwegian (Nor)

Department of German, Scandinavian, and Dutch College of Liberal Arts

Nor 1001. Beginning Norwegian. (4 cr) 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. (4 cr; SP—1001) Continues the presentation of the four all language modalities (listening, reading, speaking, writing) with a proficiency emphasis. Topics include free-time activities, careers, and the Norwegian culture.

Nor 1003. Intermediate Norwegian. (4 cr; SP—1002) Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and audio-visual materials.

Nor 1004. Intermediate Norwegian. (4 cr; SP—1103) 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.

Nor 3111. Advanced Norwegian. (4 cr; SP—Passing score on GPT) Designed to help students achieve advanced proficiency in Norwegian. Discussion of fiction, film, journalism, and professional prose is complemented by grammar and vocabulary building exercises and a systematic review of oral and written modes of communication.

Nor 3102. Advanced Norwegian. (4 cr; SP—Passing score on GPT) Discussion of novels, short stories, plays, articles complemented by structural, stylistic, vocabulary-building exercises.

Nor 4001. Beginning Norwegian. (2 cr; SP—1001; passing score on GPT in another language or grad) Meets concurrently with Nor 1001; see Nor 1001 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.
Nurs 4002. Beginning Norwegian. (2 cr; SP—S 1002, passing score on GPT in another language or grade) Meets concurrently with Nor 1002; see Nor 1002 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Nurs 4003. Intermediate Norwegian. (2 cr; SP—S 1003, passing score on GPT in another language or grade) Meets concurrently with Nor 1003; see Nor 1003 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Nurs 4004. Intermediate Norwegian. (2 cr; SP—S 1004, passing score on GPT in another language or grade) Meets concurrently with Nor 1004; see Nor 1004 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Nursing (Nurs)

School of Nursing


Nurs 1800. Nursing Topics. (1-4 cr; SP—#) Topics not included in courses.

Nurs 3690. Life Span, Growth, and Development I. (2 cr; QP—One general psychology and one general biology course or #; SP—One general psychology and one general biology course or #) An introductory, multimedia course that incorporates biological, sociological, and psychological perspectives of human life span development from the prenatal period through young adulthood.

Nurs 3691. Life Span, Growth, and Development II. (1 cr; QP—3690, one general psychology and one general biology course or #) An introductory, multimedia course that incorporates biological, sociological, and psychological perspectives of human life span development for the period of young adulthood through aging and the death experience.

Nurs 3800. Nursing Topics. (1-4 cr; SP—#) Topics not included in regular courses.

Nurs 4000. Introduction to Public Health. (2 cr; SP—Completed 15 cr) Health/risk factors of populations. Principles of epidemiology, environmental health applied to selected public health issues. Emphasizes factors that affect health, distribution of health care resources.

Nurs 4100. Introduction to Nursing, Health, and Health Promotion. (5 cr; QP—$5021, $4000, $4101, $4103, $4104) (2 cr; SP—$4100, $4101) Nature of nursing/nursing practice and relations among their foundational concepts: health, person, environment. Concepts of health, health assessment, and health promotion in the context of family/community.


Nurs 4103. Therapeutic Communication in Health Care. (3 cr; QP—Nurs student or #; SP—$4100, $4101, $4104) Principles of interpersonal communication with clients/others/literature. Interacting with clients, families, and communities.


Nurs 4202. Core Interventions for Nursing Practice. (2 cr; SP—QSP—$4200, $4205, $4210 or $4205, $4300, $4310) Psychomotor skills in core nursing, complementary, and delegated medical interventions for persons/families, throughout the life span, experiencing health disruptions/developmental transitions.

Nurs 4205. Nursing Theory and Research. (3 cr; SP—Undergrad in Nurs; SP—Undergrad in Nurs, $4200, $4205, $4210 or $4202, $4300, $4310) Examine knowledge base to the discipline and practice of nursing. Relationships among research, theory/theoretical formulations, and practice. Research process is introduced with attention to utilization of research in practice.

Nurs 4205V. Honors: Nursing Theory and Research. (3 cr; SP—Nurs honors; SP—Nurs honors) Knowledge base 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.

Nurs 4205W. Nursing Theory and Research. (3 cr; SP—Undergrad in Nurs; SP—Undergrad in Nurs, $4200, $4205, $4210 or $4202, $4300, $4310) Examine knowledge base to the discipline and practice of nursing. Relationships among research, theory/theoretical formulations, and practice. Research process is introduced with attention to utilization of research in practice.

Nurs 4210. Care of Adults with Health Disruptions II: Psychiatric Illnesses. (4 cr; SP—$4100, $4101, $4103, $4104, $4200, $4205, $4205) Forming therapeutic relationships with clients experiencing psychiatric illnesses. Collaborating with multidisciplinary team to assess biopsychosocial needs, develop holistic plan of care, help clients negotiate care, and evaluate client outcomes.

Nurs 4300. Family-Centered Nursing Care of Infants, Children, and Adolescents. (2 cr; SP—$4100, $4101, $4103, $4104, $4200, $4205, $4205) Caring for children/families when children are acutely or chronically ill. Situations/conditions common to children. Opportunities for practice at hospitals, health care agencies, schools, and community organizations.

Nurs 4302. Expanded Interventions for Nursing Practice. (2 cr; SP—$4202, $4300, $4302, $4310 or $4200, $4210, $4306) Experience of building on core interventions for nursing practice to perform psychomotor skills in expanded nursing, complementary, and delegated medical interventions when caring for persons throughout the life span in differing contexts.

Nurs 4306. Health Care Delivery Systems. (3 cr; SP—$4205, $4300, $4302, $4310 or $4200, $4210, $4306) A foundation for interpreting the structure and processes of health care delivery including the roles of health professionals. Examine social, economic, technological, and political factors influencing health care quality, access, utilization, and the ethical implications of health resource utilization.

Nurs 4310. Holistic Care of Childbearing Families. (4 cr; SP—$4100, $4101, $4103, $4104, $4205, $4001, $4004, $4400, $4410) (or $4300, $4302, $4306) Nurse’s role during antepartum period, birth experience, postpartum, and family adjustment. Birth, family, and community resources. Nursing research, roles, public health values, and collaborative activities promoting population health.

Nurs 4400. Health Care of Populations. (3 cr; SP—$4200, $4210, $4300, $4306, $4310, $4401, $4402, $4404, $4406) Synthesize knowledge and skills to promote and protect the health of populations through systematic assessment, planning, intervention, and evaluation. Emphasis on nursing research, roles, public health values, and collaborative activities promoting population health.

Nurs 4401. Health Care of Populations: Clinical Practicum. (2 cr; SP—$4200, $4210, $4300, $4306, $4310, $4400, $4402, $4404, $4406, $4410) Guided practice in population-based nursing to promote and protect health through systematic assessment, planning, intervention, and evaluation. Critical examination of interdisciplinary collaboration, partnering with culturally diverse populations, and ethical decision-making in public health.

Nurs 4402. Taking Ethical Action in Health Care. (1 cr; SP—$4200) Distribution of scarce resources to meet health care needs in various health care settings. Ethics in a managed care environment. Increasing focus on how to take ethical action in health care.

Nurs 4404. Applied Nursing Research and Research Utilization. (2 cr; SP—$4205 or #) Design and carry out a research project of limited scope to develop fundamental nursing knowledge. Interpreting and evaluating research as it applies to nursing practice. The final product is a scholarly research report.

Nurs 4404H. Honors: Applied Research and Research Utilization. (2 cr; SP—Nurs honors; SP—$4205V) Fundamental skills in utilization. Evaluating research as it applies to nursing practice. Implement study proposed in $4206, write research report to serve as honors research project or thesis.

Nurs 4406. Leadership and Management for Shaping Professional Nursing Practice. (4 cr; QP—S 4400, $4103, $4205, $4306) Provides a basis for synthesis of current leadership and management theories within the professional practice of nursing. Examine the interaction among professional nursing issues, health care trends, and the leadership potential of nurses.

Nurs 4406W. Leadership and Management for Shaping Professional Nursing Practice. (4 cr; QP—S 4400, $4103, $4205, $4306) Provides a basis for synthesis of current leadership and management theories within the professional practice of nursing. Examine the interaction among professional nursing issues, health care trends, and the leadership potential of nurses.

Nurs 4407H. Honors: Seeking Solutions to Global Health Issues. (2 cr; SP—$4404H or #) Global health issues examined from interdisciplinary perspective. Emphasizes ethical/cultural/setting complexities of issues, in order to propose realistic actions for resolution.

Nurs 4410. Critical Care Nursing. (3 cr; SP—$5140, $5141, $5142, $4200, $4210, $4300, $4306, $4310, $4400, $4402, $4404, $4406) Acquire fundamental knowledge underlying the care of patients with life-threatening conditions and their families in a highly technological and unpredictable environment. Analyze relationships of multi-system alterations in functioning from complex physiological disruptions using advanced critical thinking and prioritization skills.

Nurs 4501. Critical Care Nursing Practice. (3 cr; SP—$4400, $4401, $4402, $4404, $4410; A-F only) Participate in the care of critically-ill patients with a nurse preceptor. Synthesize theoretical knowledge and practice skills. Increase competence in evaluating patient data from numerous sources and provide safe, organized care to patients with life-threatening, multi-system problems.

Nurs 4800. Nursing Topics. (1-16 cr; max 16 cr) (SP—#) Exploration of a topic to meet individual student needs.
Course Descriptions

Nurs 4801. Research Topics. (1-16 cr; max 16 cr) QP-# SP-# Exploration of research topic to meet individual student needs.

Nurs 5141. Ethical Issues in Health Care of Elders. (3 cr; SP-Grad student or nursing sr or #) Health care related ethical issues that confront elders, their families, health care providers, and society.

Nurs 5170. Research Topics. (1-16 cr; max 16 cr) QP-# SP-# Exploration of research topic to meet individual student needs.

Nurs 5171. SPSS Programming and Data Analysis. (2 cr; QP-Inferential statistics, [grad or professional] student) or # SP-Inferential statistics, [grad or professional] student) or # Skills needed to collect/analyze data using SPSS for Windows. Review of statistical methods.

Nurs 5172. Decision Making in Health Care. (2 cr; QP-Grad student, # SP-Grad student, #) Selected classical conceptual models of decision making, ethical perspectives, decision analysis, usefulness for decision making about health care issues. Models/components used to assess, evaluate, teach, or help healthy people, patients, families, health care professionals, or policy making groups in making health care decisions.

Nurs 5200. Holistic Health Assessment and Therapeutics for Advanced Practice Nurses. (3 cr; SP-#) Health assessment knowledge/skills for advanced nursing practice with patients across age span, including pregnancy. Selected nursing interventions, complementary therapies examined for application to specific populations/illnesses.

Nurs 5202. Introduction to Complementary Health and Holistic Therapies. (3 cr) Historical and cultural context of the allopathic and complementary health traditions. Philosophes and paradigms of selected complementary therapies and culturally based health traditions; descriptions of selected interventions.


Nurs 5222. Advanced Physiology. (3 cr; SP-Grad in nurse practitioner or nurse-midwifery, # for undergrads) Synthesis of human physiology and pathophysiology to focus on physiologic changes across the life span. Emphasis on clinical application using population-specific content related to various subspecialty areas in advanced practice nursing.

Nurs 5223. Assessment of Psychopathology for Advanced Practice Psychiatric/Mental Health Nursing. (4 cr; SP-Nurs grad or #) Advanced concepts from nursing theory and research, social sciences, neuropsychology, and neurophysiology used in the assessment of psychiatric symptoms and disorders across the age continuum. During clinical, develop proficiency in the assessment of psychopathology in clients with psychiatric symptoms.

Nurs 5224. Clinical Pharmacotherapeutics. (3 cr; QP-# SP-#) Advanced practice nurses in primary care get a foundation in pharmacotherapeutics across the life span. Topics include pharmacodynamics/kinetics/epidemiology, client patterns of medication use, selection of appropriate drugs for selected client conditions, and prescriptive writing privileges for advanced practice nurses.

Nurs 5225. Psychopharmacology for Advanced Practice Psychiatric/Mental Health Nursing. (3 cr; QP-# SP-Grad student or RN [with master's degree] or #) Advanced concepts in neuroscience, psychopharmacology, and clinical management related to psychopharmacologic treatment of psychiatric disorders/symptoms. Application to problems in various clinical settings.

Nurs 5300. Health Behavior Intervention: Theory and Application. (3 cr; SP-Grad or #) Interdisciplinary course examines theoretical foundations and research base of intervention strategies to promote health behavior acquisition, behavioral change, and maintenance for adults (individuals and groups). Critical examination of health behavior research and health risk assessment; approaches to program creation.

Nurs 5340. Group as a Health-Care Intervention. (2 cr; SP-Grad or #) Theoretical concepts and research findings from the areas of group therapy and dynamics are applied in the development of a model for using group as an intervention for various client populations.

Nurs 5501. Professional Issues in Nurse-Midwifery. (1-2 cr; QP-Nurs grad major; SP-Nurs grad major; #) Analysis of professional issues that confront and impact the practicing nurse-midwife. History and development of the professional organization including certification, legislation, ethical dimensions, public policy, and clinical practice issues.

Nurs 5520. Women's Issues: A Health Perspective. (3 cr; QP-Upper div or grad student or # SP-Upper div or grad student) Multidisciplinary exploration and analysis of a broad range of women's health issues: physiological, developmental, historical, cultural, sociocultural, feminist, nursing, and medical. Topics include health promotion and reproductive health issues across the life span.

Nurs 5601. School Nursing in the Educational System and the Community. (3 cr; QP-# SP-Grad or #) Emphasis on knowledge of school health problems, assessment and intervention strategies, integration of research findings, and applications with individuals, families, and communities.

Nurs 5604. Advanced Health Assessment and Interventions with Adolescents. (3 cr; QP-# SP-CPSy 5203 or equiv or #) Development of one-on-one health assessment and intervention strategies appropriate for working with teenagers. Integrates knowledge from nursing, public health, health behavior, and adolescent development as a framework for clinical assessment and intervention approaches.

Nurs 5800. Nursing Topics. (1-4 cr; SP-#) 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.

Nurs 5801. Policymaking, Health Policy, Political Action and Nursing. (3 cr; QP-Nurs grad student) Analysis of socioeconomic values, public policymaking, health care policy, and the relationship to the health care delivery system. The impact of health care policy on the profession and practice of nurses, and on consumers. Enhanced participation of nurses in policymaking and political action.

Nurs 5802. Spirituality and Nursing Practice. (2 cr; QP-For undergrad cr: nurs or RN; for grad cr RN with Baccalaureate: SP-For undergrad cr: nurs or RN; for grad cr: nurs grad student or #) Exploration of the concept of spirituality as integral to the whole person. Discussion of spiritual nursing care interventions.

Nurs 5803. Transcultural Nursing: Theories and Issues. (2 cr; QP-Cultural anth course, nurs undergrad or grad student or RN; SP-Cultural anth course or #) Study of cultural factors that influence theories, issues, and nursing care practices in diverse cultures and subcultures. Emphasis on nursing within international systems of health care and nursing practices related to various health-illness systems in this country and worldwide.

Nurs 5804. Therapeutic Healing Touch: Research and Practice. (2 cr; SP-Upper div or grad student in [health sciences or health care] S-N only) Therapeutic Healing Touch as an energetic, biofield healing modality. Art and science of this modality. Research literature related to Therapeutic Touch/Healing Explanation for effects of practice. Practice of Therapeutic Touch, intervention techniques.

Nurs 5808. American Indian Health and Health Care. (2 cr; SP-Upper div or grad student or #) Examines health of native Americans in Minnesota within historical/cultural contexts. Epidemiology of major health conditions, health services, traditional Indian medicine, health beliefs. Opportunities for contact with Native American community.

Nurs 5809. Seminars in Critical Care. (2 cr) Analyzes current research and developments in treatments, care delivery, and ethical issues affecting critically ill patients and their families. Students participate with team of multidisciplinary faculty from Center for Critical Care in critiquing/presenting literature and discussing applications to clinical practice.


Operations and Management Science (OMS)

Department of Operations and Management Science

Curriculum

Curtis L. Carlson School of Management

OMS 1550. Business Statistics: Data Sources, Presentation, and Analysis. (4 cr; SP-Math 1031 or equiv) at least 20 cr; A-F only) Exploratory data analysis, basic inferential procedures, statistical sampling/design, regression/time series analysis. How statistical thinking contributes to improved decision making.

OMS 3001. Introduction to Operations Management. (2 cr; A-F only) Basic concepts, principles, and techniques for managing manufacturing and service operations. Emphasis on decision making in the operations function of organizations. Quantitative and qualitative methods for improving the management of operations stressed. Management students provided with an introduction to the operations function of organizations.

OMS 3041. Project Management. (2 cr; QP-3000 or # SP-3000 or # A-F only) 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 PERI and CPM, and examples of different types of projects from manufacturing and service industries are used.

OMS 3056. Production and Inventory Management. (4 cr; QP-3000 or # SP-3001 or A-F only) Concepts and principles related to designing, controlling, and improving production and inventory management systems throughout the supply chain. Topics include capacity planning, inventory planning, production planning, forecasting methods, Material Requirements Planning (MRP), Just-in-Time, and theory of constraint.

OMS 3059. Quality Management. (4 cr; QP-3000 or # SP-3001 or A-F only) Planning and organizing quality improvement of processes, products and services; quality aspects of product/service design; quality determination cost, customer/vendor relations; process control; quality control; management of improvement process; and organizational assessment of quality. Introduction of concepts relevant to service/manufacturing.

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Course Descriptions

Otolaryngology (Otol)

Department of Otolaryngology

Medical School

Otol 5101. Introduction to the Basic Sciences in Otolaryngology: Ear. (2 cr; SP–Otol major or #) 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.

Otol 5102. Introduction to the Basic Sciences in Otolaryngology: Head and Neck. (2 cr; SP–Otol major or #) 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.

Otol 5103. Directed Studies. (1–12 cr) (max 12 cr; SP–#) Directed readings and preparation of reports on selected topics.

Pharmacology (Phd)

Department of Pharmacology

Medical School

Phcl 1450. Introduction to Pharmacology: Concepts of Drug Action. (1 cr; SP–Upper div or # courses in [bio]chemistry) recommended; A-F only) Selected topics on concepts of how drugs act, their discovery, implications for society. Lectures, discussion, visits to pharmacology research labs.

Phcl 3001. Dental Therapeutics. (2 cr; SP–Regis dental hygiene program or #A-F only) Pharmacology for the dental hygienist. Principles of drug actions.

Phcl 5100. Pharmacology for Nursing Students. (3 cr; SP–Biochemistry, human physiology or #A-F only) Drug principles, mechanisms of action.

Phcl 5101. Pharmacology for Pharmacy Students. (3 cr; SP–Regis 2nd yr pharmacy student or #A-F only) Action/fate of drugs. Lectures, lab.

Phcl 5102. Pharmacology for Pharmacy Students. (2 cr; SP–Pharm 3101 or #A-F only) Action/fate of drugs.

Phcl 5103. Pharmacology for Dental Students. (3 cr; QP–Regis dental student or SP–Regis dental student or #A-F only) Pharmacological principles/actions of drugs.

Phcl 5109. Problems in Pharmacology. (1–18 cr; QP–Upper div or grad student or # SP–Upper div or grad student or #) Research projects and special problems by arrangement.

Phcl 5110. Introduction to Pharmacology. (2 cr [max 2 cr; SP–Grad student or #A-F only] Basic principles of Pharmacology. Focuses on molecular mechanisms of drug action.

Phcl 5462. Neuropsychopharmacology of Abused Drugs. (3 cr; SP–ENSC 5208; 6112, Psy 5062 or #) Principles of pharmacology and methodologies used to study relationships between drugs and biochemical, behavioral, and neuropsychological variables. Functional biogenic amine, peptide and other pathways; theories of tolerance and/or dependence on stimulants, hallucinogens, depressants, and opiates.

Phcl 5101. Orientation to Pharmacy. (1 cr; S-N only) The pharmacist’s role, issues faced by the pharmacy profession, and information on the University of Minnesota College of Pharmacy

Phcl 5102. Health Sciences Terminology. (2 cr; SP–15201) A self-study course designed to provide students with a working knowledge of terminology used in the Health Sciences.

Phcl 5101. Health Sciences Applied Terminology. (2 cr; SP–Phar 1002 or anatomy and physiology) A self-study course designed to provide students with advanced knowledge of medical terminology and its application in the content of patient medical records and clinical cases.

Phcl 5270. Therapeutics of Herbal and Other Natural Medicinals. (2 cr; SP–Organic chem, systems physiology, pathophysiology of disease states, third yr pharmacy student; A-F only) Herbal products and supplements; interdisciplinary course which will encompass the pharmacology, clinical indications, drug interactions of the most commonly used products today in nontraditional complementary health care. The historical significance as well as evidenced-based role of these products in health care today will be explored. Case studies will help the student understand the clinical application of these products. Designed for practitioners and students in the health sciences.

Phcl 5280. Principles of Health Care Counseling. (1 cr; SP–Health Professional Student within Academic Health Center) Develop counseling skills and apply these skills to the care of patients using simulated counseling exercises.

Philosophy (Phil)

Department of Philosophy

College of Liberal Arts

Phil 1001. Introduction to Logic. (4 cr) Application of formal techniques for evaluating arguments.

Phil 1001H. Honors Course: Introduction to Logic. (4 cr) Application of formal techniques for evaluating arguments.


Phil 1002W. Introduction to Philosophy. (4 cr) Problems, methods and schools of philosophy; historical and contemporary.

Phil 1003V. Honors: Introduction to Ethics. (4 cr) Central concepts, principal theories of moral philosophy.

Phil 1003W. Introduction to Ethics. (4 cr) Central concepts and principal theories of moral philosophy.

Phil 1004V. Honors: Introduction to Political Philosophy. (4 cr) Central concepts, principal theories of political philosophy.

Phil 1004W. Introduction to Political Philosophy. (4 cr) Central concepts and principal theories of political philosophy.

Phil 1005. Scientific Reasoning. (4 cr; SP–[1st or 2nd yr] student or #) Techniques for understanding/evaluating scientific information as presented in popular media and in specialized publications. Emphasizes general reasoning skills that do not require extensive training in particular sciences.

Phil 1006W. Philosophy and Cultural Diversity. (4 cr; SP–1002) Central problems and methods of philosophy through culturally diverse texts. Focus will be critical and comparative, reflecting a range of U.S. philosophical traditions.

Phil 1007. Introduction to Political Philosophy Practicum. (1 cr; QP–1004; SP–1004) Students are required to do at least two hours a week of community service and connect their service activities in writing to issues discussed in 1004.


Phil 1026W. Philosophy and Cultural Diversity. (3 cr; SP–1006) Central problems/methods of philosophy through culturally diverse texts. Focus is critical/comparative, reflecting a range of U.S. philosophical traditions.

Phil 1910W. Topics: Freshman Seminar. (3 cr; SP–Fr or max 36 cr; A-F only) Topics specified in Class Schedule.


Phil 3005V. Honors: General History of Western Philosophy: Modern Period. (4 cr; SP–3005W; 3005, honors) Major developments in philosophical thought of modern period: renaissance beginnings, Descartes through Kant.

Phil 3005W. General History of Western Philosophy: Modern Period. (4 cr) Major developments in philosophical thought of the modern period: renaissance beginnings, Descartes through Kant.

Phil 3010W. Classical Ancient Text. (3 cr) Introduction to and in-depth analysis of Plato’s Republic.

Phil 3231W. Philosophy and Language. (4 cr) Philosophical issues concerning the nature and use of human language.

Phil 3234W. Knowledge and Society. (4 cr) 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 3302W. Moral Problems of Contemporary Society. (4 cr) Selected moral problems of private and public life.

Phil 3304W. Law and Morality. (4 cr) A study of the relationship among law, morality, and our role as citizens.

Phil 3305. Medical Ethics. (4 cr) 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.
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<th>Course Descriptions</th>
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<tr>
<td><strong>Phil 3307W. Social justice and Community Service.</strong> (4 cr)</td>
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<tr>
<td><strong>Phil 3308W. Social justice and Community Service.</strong> (4 cr)</td>
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<tr>
<td><strong>Phil 3311W. Introduction to Ethical Theory.</strong> (4 cr)</td>
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<tr>
<td><strong>Phil 3322W. Moral Problems of Contemporary Society.</strong> (3 cr; SP–3302 or #)</td>
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<tr>
<td><strong>Phil 3502W. Introduction to Aesthetics.</strong> (4 cr)</td>
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<tr>
<td><strong>Phil 3601W. Scientific Thought.</strong> (4 cr; SP–One course in philosophy or natural science)</td>
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<tr>
<td><strong>Phil 3607W. Philosophy of Psychology.</strong> (4 cr; SP–One course in philosophy or psychology)</td>
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<tr>
<td><strong>Phil 3900H. Honors Seminar.</strong> (3 cr; SP–Honors regis, 6 cr of 3xxx-5xxx philosophy courses)</td>
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<tr>
<td><strong>Phil 3910W. Major Seminar.</strong> (3 cr; SP–Phil major or #)</td>
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<tr>
<td><strong>Phil 3993. Directed Studies.</strong> [1-3 cr; SP–#; A-F only]</td>
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<td><strong>Phil 4003. Medieval Philosophy.</strong> (3 cr; SP–Grad or upper div undergrad student)</td>
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<tr>
<td><strong>Phil 4004W. 19th-Century Philosophy.</strong> (3 cr; SP–Grad or upper div undergrad student)</td>
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<tr>
<td><strong>Phil 4008W. Survey of Contemporary Philosophy.</strong> (3 cr; SP–3005 or #)</td>
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<tr>
<td><strong>Phil 4009W. Existentialism.</strong> (3 cr; SP–3005 or 4004 or #)</td>
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<td><strong>Phil 4010W. Selected Ancient Philosopher.</strong> (3 cr; SP–3001 or #)</td>
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<td><strong>Phil 4030. Selected Medieval Philosopher.</strong> (3 cr; SP–3001 or 4003 or #)</td>
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<td><strong>Phil 4040W. Selected Rationalist.</strong> (3 cr; SP–3005 or #)</td>
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<td><strong>Phil 4050W. Selected Empiricist.</strong> (3 cr; SP–3005 or #)</td>
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<td><strong>Phil 4055W. Kant.</strong> (3 cr; SP–3005 or 4004 or #)</td>
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<tr>
<td><strong>Phil 4070W. Selected 19th- or Early to Middle 20th-Century Philosophy.</strong> (3 cr; SP–One sem history of philosophy course or #)</td>
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<tr>
<td><strong>Phil 4085W. Wittgenstein.</strong> (3 cr; SP–3005 or 4231 or #)</td>
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<tr>
<td><strong>Phil 4101W. Metaphysics.</strong> (3 cr; SP–One sem history of philosophy or #)</td>
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<td><strong>Phil 4105W. Epistemology.</strong> (3 cr; SP–1001 or #; A-F only)</td>
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<tr>
<td><strong>Phil 4231W. Philosophy of Language.</strong> (3 cr; SP–1001, 5201 or #)</td>
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<tr>
<td><strong>Phil 4310W. History of Moral Theories.</strong> (3 cr; SP–1003 or #)</td>
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<tr>
<td><strong>Phil 4320W. Intensive Study of a Historical Moral Theory.</strong> (3 cr; SP–1003 or #)</td>
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<tr>
<td><strong>Phil 4321W. Theories of Justice.</strong> (3 cr; SP–1003 or 1004 or #)</td>
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<tr>
<td><strong>Phil 4342W. Ethics and Education.</strong> (3 cr; SP–6 cr in [philosophy or education] or #)</td>
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<tr>
<td><strong>Phil 4352W. Education and Social Change.</strong> (6 cr; SP–A-F only)</td>
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<tr>
<td><strong>Phil 4330W. Contemporary Moral Theories.</strong> (3 cr; SP–1003 or #)</td>
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<td><strong>Phil 4414W. Political Philosophy.</strong> (3 cr; SP–1004 or #)</td>
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<tr>
<td><strong>Phil 4501W. Principles of Aesthetics.</strong> (3 cr; SP–3502 or one philosophy course or #)</td>
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<tr>
<td><strong>Phil 4501W. Philosophy of the Individual Arts.</strong> (3 cr; SP–3502)</td>
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<tr>
<td><strong>Phil 4521. Philosophy of Religion.</strong> (3 cr; SP–8 cr in philosophy)</td>
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<tr>
<td><strong>Phil 4605. Space and Time.</strong> (3 cr; SP–Courses in [philosophy or physics] or #)</td>
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<tr>
<td><strong>Phil 4611W. Philosophy of the Social Sciences.</strong> (3 cr; SP–9 cr of [philosophy or social science] or #)</td>
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<tr>
<td><strong>Phil 4614W. Philosophy of Psychology.</strong> (3 cr; SP–[3607 or Psy 3051, 5011] or #)</td>
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<tr>
<td><strong>Phil 4615W. Minds, Bodies, and Machines.</strong> (3 cr; SP–One course in philosophy or #)</td>
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<tr>
<td><strong>Phil 4622W. Philosophy and Feminist Theory.</strong> (3 cr; SP–8 cr in [philosophy or women’s studies] or #)</td>
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<tr>
<td><strong>Phil 4760. Selected Topics in Philosophy.</strong> (3 cr; SP–3[3005-500] cr in philosophy or #)</td>
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<tr>
<td><strong>Phil 4993. Directed Studies.</strong> [1-3 cr; SP–#; A-F only]</td>
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<tr>
<td><strong>Phil 5201. Symbolic Logic I.</strong> (4 cr; SP–1001 or #)</td>
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<tr>
<td><strong>Phil 5202. Symbolic Logic II.</strong> (4 cr; SP–5201 or #)</td>
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<tr>
<td><strong>Phil 5211. Modal Logic.</strong> (3 cr; SP–5201 or #)</td>
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<tr>
<td><strong>Phil 5212. Philosophy of Logic.</strong> (3 cr; SP–5202 or #)</td>
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<tr>
<td><strong>Phil 5222. Philosophy of Mathematics.</strong> (3 cr; SP–5202 or 5xxx math course)</td>
</tr>
<tr>
<td><strong>Phil 5325. Biomedical Ethics.</strong> (3 cr; SP–# for undergraduates)</td>
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<tr>
<td><strong>Phil 5415. Philosophy of Law.</strong> (3 cr; SP–1003 or 1004 or 3302 or social science major or #)</td>
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Phil 5606. Philosophy of Quantum Mechanics. (3 cr) Problems of interpretation in ordinary (nonrelativistic) quantum mechanics. Two-slit experiment, Schrödinger 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 5760. Selected Topics in Philosophy. (3 cr; SP–3 cr [3xxx-5xxx] in phil or #) Philosophical problems on contemporary interest. Topics specified in Class Schedule.

Phil 5993. Directed Studies. (1-3 cr; SP–#) Guided individual reading or study.

Course Descriptions

Physical Education (PE)

School of Kinesiology and Leisure Studies
Colleges of Education and Human Development

PE 1004. Diving: Springboard. (1 cr; OP–1007 or equiv; # SP–1007 or equiv or #) Fundamentals of diving. Proper mechanics/techniques to ensure safety. Technical/numerical aspects. Lecture, participatory training.

PE 1007. Beginning Swimming. (1 cr) 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 1014. Conditioning. (1 cr) 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) Introduction to weight training. Basic aspects of weight training including exercise selection and technique, chart workouts, program design, nutritional considerations, and safety.

PE 1016. Posture and Individual Exercise. (1 cr) 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) 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) Basic saber forms, movement, an overview of fencing as a recreational sport and an Olympic sport, and the history of fencing.

PE 1032. Badminton. (1 cr) Fundamentals including etiquette, terminology, game rules for singles and doubles, footwork, shot selection, and strategy.

PE 1033. Foil Fencing. (1 cr) Fencing 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. I.udo. (1 cr) Basic skills for throwing, falling, grappling (matwork), choking, arm and neck techniques; contest judo from Ju-Jitsu; fundamental rules and scoring of contests. Videotapes used for technique instruction and contest appreciation.

PE 1035. Karate. (1 cr) Japanese Traditional Shotokan Karate (JTSK) is non-contact; protective pads or gear are worn. Structural foundation, discipline and control, posture, basic body dynamics, blocking, kicking, punching techniques, as well as basic sparring (kumate) and forms (kata).

PE 1036. Racquetball. (1 cr) 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) Entry-level technique, basic equipment, international dimension courts, and fitness.

PE 1038. Beginning Tennis. (1 cr) Fundamental strokes, including forehands, backhands, volleys, lobs, overheads, and serves; introduction to doubles play; terminology, rules, and etiquette.

PE 1041. Cycling. (1 cr) Fundamentals of cycling, including physical fitness associated with aerobic training, stretching, safety, and bike maintenance. Students should provide bicycle in good working condition.

PE 1042. Orienteering. (1 cr) Fundamentals, including navigation of an orienteering course using map and compass; types of orienteering courses; multiple techniques and tactics of orienteering. Course is physically challenging and requires participation in three orienteering meets (Sunday afternoons).

PE 1043. Beginning Horse Riding. (1 cr) Techniques, styles, and communication of English riding. Students will learn riding techniques at a walk, trot, canter, and jumping.

PE 1044. Self-Defense. (1 cr) 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 1048. Bowling. (1 cr) Fundamentals, including stance, approach and delivery, scoring, bowling terminology, and etiquette.

PE 1053. Ice Skating. (1 cr) 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) Proper grip, stance, ball address, swing, club selection, psychological management, rules, and etiquette. Basic instruction in analyzing, assisting with, and coaching golf.

PE 1056. Nordic (Cross-Country) Skiing. (1 cr) Introduction to the fundamental techniques of classical and freestyle cross country skiing. Students will be taught through lecture and direct experience on cross country skiing trails.

PE 1057. Beginning Sking. (1 cr) Introduction to alpine skiing. Students are taught to stop, turn, and use lifts, as well as safety, etiquette, and purchase of equipment. Class held at Highland Hills ski area in Bloomington.

PE 1059. Track and Field. (1 cr) Introduction to track and field: conditioning and training, events and skills, strategies, track and field knowledge, equipment, facilities, and technology.

PE 1065. Tumbling and Floor Exercise. (1 cr) Basic tumbling skills, including rolls, handstands, cartwheels, extensions, handspins, and tucks (flips), accompanied by the appropriate spotting techniques.

PE 1067. Basketball. (1 cr) Fundamental skills and rules of basketball, with emphasis on basic court movement and different offensive and defensive strategies.

PE 1072. Soccer. (1 cr) 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 1073. Softball. (1 cr) Development of basic skills for lifetime involvement.

PE 1074. Beginning Volleyball. (1 cr) Basic skills, team play, rules, officiating, and strategy.

PE 1075. Ice Hockey. (1 cr; OP–1053 or equiv; # SP–1053 or equiv or #) Offensive/defensive strategies/techniques, goal tending, scrimmage play. Students need their own equipment.

PE 1107. Intermediate Swimming. (1 cr; OP–# 1007 or equiv; proficient ability to swim 100 meters; SP–# 1007 or equiv; proficient ability to swim 100 meters) Intermediate swimming skills. Fundamentals of swimming and hydrodynamics.

PE 1133. Intermediate Foil Fencing. (1 cr; OP–# 1033 or equiv; # SP–1033 or equiv or #) Intermediate/advanced technical/tactical actions in foil, rudimentary epee skills, intermediate/advanced footwork. Rules, officiating, bout tactics.

PE 1135. Intermediate Karate. (1 cr; OP–# 1035 or equiv; # SP–1035 or equiv or #) Techniques of Japanese traditional Shotokan Karate taught through Ippon Kumite (one step sparring), Sun Kumite (three step sparring), and Heian Shodan Kata/ Nidan Kata (forms). Testing for orange belt is optional.

PE 1136. Intermediate Racquetball. (1 cr; OP–# 1036 or equiv; # SP–1036 or equiv or #) Improvement of basic skills and strategies. Format is determined by the number of players and their level of ability.

PE 1138. Intermediate Tennis. (1 cr; OP–# 1038 or equiv; # SP–1038 or equiv or #) Review terminology, rules, etiquette. Improve basic skills. Singles/doubles strategy, competitive play.

PE 1154. Figure Skating. (1 cr; OP–# 1053 or equiv; # SP–1053 or equiv or #) Terminology, rules. Basic moves, jumps, spins, off-ice assignments.

PE 1157. Intermediate Skiing. (1 cr; OP–# 1057 or equiv; # assessment is made to determine skill level; SP–# 1057 or equiv or # assessment is made to determine skill level) Developing advanced skills in alpine skiing. Skiing safely on more difficult terrain. Class held at Highland Hills ski area in Bloomington.

PE 1165. Intermediate Tumbling. (1 cr; OP–# 1065 or equiv; # SP–# 1065 or equiv or #) Rolls, handstands, cartwheels, extensions, handspins, tucks (flips), twisting, and combinations. Skills accompanied by spotting techniques.

PE 1174. Intermediate Volleyball. (1 cr; OP–# 1074 or equiv; # SP–# 1074 or equiv) Development of a broader understanding of volleyball systems of play, and incorporation of offensive and defensive formations into team play. Fundamental skills will be developed further and more advanced skills will be introduced. Team play, transition, coaching, and officiating.

PE 1205. Scuba and Skin Diving. (1 cr; OP–# 1107 or equiv; # SP–1107 or equiv or #) Diving equipment, physics, physiology, decompression, emergencies, recreational dive planning, oceans, currents and aquatic life, snorkeling/SCUBA equipment usage, buoyancy control, entries, emergencies.

PE 1305. Scuba Stress Rescue and Accident Management. (1 cr) Certification or higher, CPR, First Aid certified, own SCUBA equipment [mask, fins, snorkel, buoyancy compensator, reg, ocean depth pressure gauge, wet suit] or pay $55 rental fee; A-F only Continuing education after basic SCUBA certification course. Accident prevention.
Course Descriptions

**Physical Medicine and Rehabilitation (PMed)**

**Department of Physical Medicine and Rehabilitation**

**Medical School**

PMed 1002. Orientation to Physical Therapy. (1 cr; S-N only)
- Introduction to the profession of physical therapy through lectures, discussions, patient presentations, clinical visits, videotapes, and exposure to treatment equipment.

PMed 1003. Orientation to Occupational Therapy. (1 cr; S-N only)
- Survey of the profession through lectures, films, demonstrations, and tours. For students investigating the field of occupational therapy.

PMed 5100. Seminar I: Overview of Rehabilitation Science. (2 cr; SP–A-F only)
- History and future of physical rehabilitation, health-care models, epidemiology of physical disorders, research on treatment outcomes, measurement issues, clinical evaluation of traditional vs. nontraditional rehabilitation strategies.

PMed 5121. Issues in Mental Health. (1 cr; QP–One course gen psych, one course abnorm psych; SP–One course gen psych, one course abnorm psych, S-N only)
- Psychiatric/neuropsychological assessment/treatment. Issues related to mental/physical community management and to roles of OT/PT with respect to clients with mental health needs. Interaction between physical/mental health and disability.

PMed 5135. Pathokinesiology. (2 cr; SP–A-F only)
- Lecture and lab emphasizing anatomical, physiological, and biomechanical aspects of normal and pathological human motion, including analysis techniques.

PMed 5161. Theory of Physical Medicine and Rehabilitation Applied to Medical Sciences. (3 cr; [max 3 cr] QP–Regis OT or PT student or SP–Regis OT or PT student or A-F only)
- Clinical science lectures focusing on diagnostic procedures and medical, surgical, and rehabilitation management of patient problems in orthopedics, surgery, pediatrics, dermatology, medicine, cancer, and speech. Includes correlation to current practice and presentation of patient cases.

PMed 5182. Functional Neuroanatomy/Neurophysiology. (4 cr; QP–Regis OT or PT student or SP–Regis OT or PT student or A-F only)
- Functional structures as function systems and basis: neurophysiologic concepts with emphasis on applications for understanding and treating physical dysfunctions.

PMed 5215. Clinical Practice of Physical Therapy I. (2 cr; SP–Regis PT student; S-N only)
- First of three-course sequence. Emphasizes sensitivity to needs of patients, families, and health-care workers. Patient handling techniques, communication skills, awareness of cultural differences, psychological aspect of disability, and use of community resources.

PMed 5216. Clinical Practice of Physical Therapy II. (1 cr; SP–Regis PT student; S-N only)
- Second of three-course sequence. Emphasizes sensitivity to needs of patients, families, and health-care workers. Patient handling techniques, communication skills, awareness of cultural differences, psychological aspect of disability, and use of community resources.

PMed 5217. Clinical Practice of Physical Therapy III. (2 cr; SP–Regis PT student; S-N only)
- Third of three-course sequence. Emphasizes sensitivity to needs of patients, families, and health-care workers. Patient handling techniques, communication skills, awareness of cultural differences, psychological aspect of disability, and use of community resources.

PMed 5221. Therapeutic Procedures. (3 cr; SP–Regis PT student; A-F only)
- Theory and techniques, therapeutic massage, ultraviolet radiation, medical and athletic bandaging, asepsis and isolation, thermotherapy, hydrotherapy, positive pressure devices, volumetric measurements.

PMed 5223. Electrotherapy and Electrophysiological Testing. (2 cr; SP–Regis PT student; A-F only)
- Theory and technique of movement analysis and treatment using electrophysiological testing and therapeutic devices.

PMed 5231. Biomechanics. (3 cr; SP–Regis PT student; A-F only)
- Forces and structures internal and external to the body responsible for both normal and abnormal human movement, including analysis techniques and independent assignments. Muscle function, palpation, posture, and gait of normal individuals with analysis to detect deviations from the norm.

PMed 5255. Clinical Internship I. (3 cr; SP–Regis PT student; S-N only)
- Five-week, full-time internship. Select and perform physical therapy evaluation techniques, interpret results, define rationale for physical therapy service, develop a care plan, implement treatment program, and communicate patient/client care process as a physical therapy professional.

PMed 5260. Professional Issues in Physical Therapy. (3 cr; SP–Regis PT student; A-F only)
- Current professional issues, dilemmas, and trends in health care. Evaluation and treatment skills in physical therapy specialty areas.

PMed 5281. Therapeutic Exercise I. (3 cr; SP–Regis PT student; A-F only)
- Principles of skeletal muscle, connective tissue, and collagen physiology, physics, and neurology as basis for therapeutic exercise. Exercise physiology and related microanatomy of the musculoskeletal and respiratory systems as they relate to rehabilitation problems. Time line for treatment of loss of mobility and endurance and strength training.

PMed 5282. Therapeutic Exercise II. (3 cr; SP–Regis PT student; A-F only)
- Principles of neurophysiology, neurology, motor control, and muscular testing as basis for therapeutic intervention in motor dysfunction.

PMed 5283. Musculoskeletal I. (4 cr; SP–Regis PT student; A-F only)
- First of two-course sequence. Problem-solving approach to evaluating, treating, and preventing selected musculoskeletal conditions across life span. Chart review, history taking, strengthening, functional testing, gait and posture examination, special orthopedic tests. Therapeutic exercises, orthopedic ambulation, joint mobilization, splinting, patient education.

PMed 5284. Musculoskeletal III. (3 cr; SP–Regis PT student; A-F only)
- Problem-solving approach to evaluating, treating, and preventing selected musculoskeletal conditions across life span. Chart review, history taking, strength testing, functional testing, gait/posture examination, special orthopedic tests. Therapeutic exercises, orthopedic ambulation, joint mobilization, splinting, patient education. Second of two-course sequence.

PMed 5287. Neurorehabilitation I. (4 cr; SP–Regis PT student; A-F only)
- Assessment and rehabilitation of patients with neurological conditions (e.g., cerebral vascular disease, traumatic brain injury, multiple sclerosis, Parkinson’s disease, amyotrophic lateral sclerosis). Using treatment procedures, orthotics, and equipment to improve function and prevent, stabilize, or decrease impairments.

PMed 5288. Neurorehabilitation II. (4 cr; SP–Regis PT student)
- Assessment and rehabilitation of patients with neurological, immunological, and vascular conditions.

PMed 5290. Administration and Teaching Practicum. (4 cr; SP–Regis PT student; A-F only)
- Learning experiences and special assignments related to physical therapy administration.

PMed 5293. Research Design in Physical Therapy. (3 cr; SP–Regis PT student; A-F only)
- Predictive research, elementary statistical concepts, analysis of scientific literature, research proposal.

PMed 5294. Independent Study in Physical Therapy. (1 cr; SP–Regis PT student; A-F only)
- Students must demonstrate proficiency in clinical skills, team participation, and evaluation and treatment skills; predict outcomes and manage a variety of patient diagnoses/problems consistently with good and safe judgment; and have successfully completed all previous clinical education experiences.

PMed 5300. Concepts for Occupational Therapy Practice. (4 cr; SP–Regis OT student or SP–Regis OT student or A-F only)
- Critical thinking, ethics, professional resource/organizations, patient-therapist relationship. Level I fieldwork experience.

PMed 5313. Therapeutic Occupation. (4 cr; QP–Regis OT student or SP–Regis OT student or A-F only)
- Occupational therapy philosophy, history, and frames of reference. Activity analysis applied to goal-fulfilling, therapeutic activities for individuals and groups.

PMed 5340. Human Growth and Development. (2 cr; SP–Regis PT student; A-F only)
- Development process throughout the life span, including physical, social, cognitive, and personality development and how they may be influenced by genetic and environmental factors.

PMed 5341. Introduction: Evaluation and Intervention I. (4 cr; QP–Regis 3rd-yr PT student; A-F only)
- Assessment concepts/techniques. Application to patient populations with both mental/physical disabilities. Treatment planning/document.

PMed 5342. Compensatory Rehabilitation: Evaluation and Intervention II. (4 cr; QP–Regis PT; A-F only)
- Assessment of daily living performance areas; adaptation techniques to compensate for performance deficits. Level I fieldwork experience.

PMed 5343. Specialty Topics: Evaluation and Intervention III. (4 cr; QP–Regis PT; A-F only)
- 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.
**Course Descriptions**

**Physics (Phys)**

**School of Physics and Astronomy**

**Institute of Technology**

**Phys 1001W, Energy and the Environment.** (4 cr; QP—One yr high school algebra; SP—One yr high school algebra)

Fundamental principles governing physical world in context of energy/environment. Lab.

**Phys 1011. Physical World.** (3 cr; QP—One yr high school algebra; SP—One yr high school algebra; A-F only)

Analysis of real world situations. Motion, forces, conservation principles, fields, structure of matter. Applications to electromagnetic phenomena.

**Phys 1041. Mechanics.** (4 cr; QP—One yr high school algebra; SP—One yr high school algebra; A-F only)

Topics represented in context of real world situations. Motion, forces, conservation principles, fields, sound, light, electricity, magnetism. Emphasizes development of logical reasoning skills. Lab.

**Phys 1101W. Introductory College Physics I.** (4 cr; QP—High school algebra, plane geometry, trigonometry; SP—High school algebra, plane geometry, trigonometry; primarily for students interested in technical areas)

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.

**Phys 1102W. Introductory College Physics II.** (4 cr; QP—1041; SP—1101; primarily for students interested in technical areas)

Fundamental principles of physics in the context of everyday world. Use of conservation principles and quantitative/qualitative problem solving techniques to understand natural phenomena. Lecture, recitation, lab.

**Phys 1111. Basic Physics I.** (4 cr; QP—High school algebra, high school geometry, high school trigonometry; SP—High school algebra, high school geometry, high school trigonometry)


**Phys 1112. Basic Physics II.** (4 cr; QP—1041 or equiv; SP—1111 or equiv)


**Phys 1114. General Physics, Transition.** (2.67 cr; QP—[High school calculus or Math 1142 or equiv], [high school trigonometry or Math 1008 or Math 1151]; A-F only)

Fundamental principles of physics. Description of motion, forces, conservation principles, structure of matter. Applications to mechanical systems, including fluids, waves, heat. Lab.

**Phys 1201W. Introductory Physics for Pre-Medicine and Biology I.** (5 cr; QP—[High school or college] calculus, trigonometry, algebra; SP—[High school or college] calculus, trigonometry, algebra)

Fundamental principles of physics. Description of motion, forces, conservation principles, structure of matter. Applications to electrical and magnetic phenomena, including optics, atomic structure. Lab.

**Phys 1202W. Introductory Physics for Pre-Medicine and Biology II.** (5 cr; QP—1104, 1105; SP—1201)

Fundamental principles of physics. Motion, forces, conservation principles, structure of matter. Applications to electromagnetic phenomena, including optics, atomic structure. Lab.

**Phys 1301W. Introductory Physics for Science and Engineering I.** (4 cr; QP—Math 1252 or Math 1352 or Math 1552H; SP—Phys 1401, Math 1271 or Math 1371 or Math 1571)

Use of fundamental principles to solve quantitative problems. Motion, forces, conservation principles, structure of matter. Applications to mechanical systems.

**Phys 1302W. Introductory Physics for Science and Engineering II.** (4 cr; QP—1252, Math 1261 or Math 1353 or Math 1553H; SP—1402, 1301, Math 1272 or Math 1372 or Math 1572)

Use of fundamental principles to solve quantitative problems. Motion, forces, conservation principles, fields, structure of matter. Applications to electromagnetic phenomena.

**Phys 1401V. Honors Physics I.** (4 cr; QP—Selection for IT honors or consent of IT honors office; SP—§1301; selection for IT honors or consent of IT honors office)

Comprehensive calculus-level general physics course emphasizing the use of fundamental principles to solve quantitative problems. Description of motion, forces, conservation principles, and the structure of matter with applications to mechanical systems.

**Phys 1402V. Honors Physics II.** (4 cr; QP—Selection for IT honors or consent of IT honors office; SP—§1302; selection for IT honors or consent of IT honors office)

Second semester of comprehensive calculus-level general physics course emphasizing the use of fundamental principles to solve quantitative problems. Description of motion, forces, conservation principles, fields, and the structure of matter with applications to electromagneto phenomena.

**Phys 2201. Introductory Thermal and Statistical Physics.** (2 cr; QP—1253, Math 1261 or equiv; SP—1302 or 1402; Math 2233 or Math 2253)

Thermodynamics and its underlying statistical nature.

**Phys 2303. Introductory Physics for Science and Engineering III.** (4 cr; QP—1253 or 1453H, Math 3261 or equiv; SP—§Phys 2403, 1302, Math 1272 or Math 1372 or Math 1572)

Use of fundamental principles to solve quantitative problems. Motion, forces, conservation principles, fields, structure of matter. Applications to 20th-century physics such as classical/quantum mechanical waves, optics, special relativity, atomic/molecular structure of materials.

**Phys 2311. Modern Physics.** (4 cr; QP—1253 or 1453H, Chem 1052, Math 3261; SP—1302 or 1402; Chem 1022, Math 2243)

Broad overview of physical concepts developed in twentieth century. Special relativity, wave-particle duality, Schrödinger equation, Bohr atom, hydrogen atom in wave mechanics, many-electron atoms, x-rays, nuclear structure, radioactivity, nuclear reactions, statistical physics.

**Phys 2402L. Honors Physics III.** (4 cr; QP—Phys 1453H, selection for IT honors or consent of IT honors office; SP—§2403, selection for IT honors or consent of IT honors office)

Third semester of comprehensive calculus-level general physics emphasizing the use of fundamental principles to solve quantitative problems. Applications to 20th-century physics such as classical and quantum mechanical waves, optics, special relativity, and the atomic structure of materials.

**Phys 2601. Quantum Physics.** (4 cr; QP—1253 or 1453H, Math 3261 or equiv; 3254 or 3454H recommended; SP—2303 or 2403, Math 2263 or Math 2374 or Math 3574)

Introduction to quantum mechanics and selected topics from its application to atomic, molecular, condensed-matter, nuclear, elementary-particle, and statistical physics. Associated lab is 2605.

**Phys 2605. Quantum Physics Laboratory.** (3 cr; QP—Phys 3512 or Phys 3501, SP—§2601)

Laboratory experiments in atomic, solid state, and nuclear physics offered in conjunction with 2601.

**Phys 3071W. Laboratory-Based Physics for Teachers.** (4 cr; QP—College algebra; SP—College algebra)

Laboratory-based introductory physics designed for students intending to be education majors. Topics selected to apply to elementary school curriculum include the earth’s motion, properties of matter, heat and temperature, kinematics, and electric current.

**Phys 3940H. Junior Honors Seminar.** (1 cr; max 3 cr) QP—IT or CLA upper div honors, SP—Upper div honors.

Designed to prepare students for senior honors thesis projects and provide guidance in choice of future careers.
Course Descriptions

Phys 3993. Directed Studies. (1-5 cr [max 10 cr]; QP–#; Δ; SP–#; A)
Directed study in Physics in areas arranged by the student and a faculty member.

Phys 3994. Directed Research. (1-5 cr [max 10 cr]; QP–#; Δ; SP–#; A)
Independent directed study in physics in areas arranged by the student and a faculty member.

Phys 4001. Analytical Mechanics. (4 cr; QP–Math 2621 or equiv; SP–2601, Math 2263 or Math 2374 or Math 3574)
Analytic Newtonian mechanics. Mathematics beyond prerequisites developed as required.

Phys 4002. Electricity and Magnetism. (4 cr; QP–5022; SP–4001)
Classical theory of electromagnetic fields using vector algebra and vector calculus.

Phys 4051. Methods of Experimental Physics I. (5 cr; QP–5316 or equiv; SP–2605 or equiv lab experiment or #)
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.

Phys 4052W. Methods of Experimental Physics II. (5 cr; QP–5122 or # or SP–4051)
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.

Phys 4071. Concepts in Physics. (3 cr; QP–General physics or SP–2201, 2303)
Overview of physics with emphasis on 20th-century developments. Primarily for secondary teachers and science majors wishing to understand the conceptual connections within physics.

Phys 4101. Quantum Mechanics. (4 cr; QP–3513; SP–2601)
Mathematical techniques of quantum mechanics. Schrödinger Equation and simple applications, general structure of quantum mechanics, operator methods, perturbation theory, radiation from atoms.

Phys 4111. History of 19th-Century Physics. (3 cr; QP–#; SP–5924, general physics or #; #; SP–#; HSSci 4111, general physics or #)

Phys 4121. History of 20th-Century Physics. (3 cr; QP–#; HSSci 5925, general physics or #; #; SP–#; HSSci 4211, general physics or #)
Experimental and theoretical discoveries in 20th-century physics (birth of modern physics, special theory of relativity, old and new quantum theories, nuclear physics to WWII) within the context of concurrent educational, institutional, and political developments in Europe and the United States.

Phys 4201. Statistical and Thermal Physics. (3 cr; QP–3513 or equiv; SP–2201, 2601)
Principles of thermodynamics and statistical mechanics. Selected applications such as kinetic theory, transport theory, phase transitions.

Phys 4211. Introduction to Solid-State Physics. (3 cr; QP–5102, 5202 or equiv; SP–4101, 4201)
A modern presentation of the properties of solids. Topics include vibrational and electronic properties of solids, magnetic properties in solids and electron band structure. Other possible topics include optical properties, magnetic phenomena, and superconductivity.

Phys 4221. Magnetism: Physics, Geophysics, and Engineering. (1-2 cr; QP–#ESEE 5561, 5 Geo 5561; 1253 or 1453; SP–Geo 4221, 1302 or 1402)
Fundamentals of magnetism including elementary statistical mechanics, rock magnetism, and micromagnetic modeling. Important applications of magnetism in geophysics, biomagnetism, magnetic sensors, and recording will be introduced.

Phys 4303. Waves, Optics, and Relativity. (3 cr; QP–5024 or #; SP–4001, 4002)
Further topics in wave mechanics, electricity and magnetism including mechanical and electromagnetic wave phenomena, physical and geometrical optics, and relativistic dynamics of particles and fields.

Phys 4311. Introduction to Nuclear Physics. (3 cr; QP–5101 or equiv; SP–4101)
Survey course for nonspecialists and an introductory course for those intending to specialize in elementary particle physics.

Phys 4501. Experimental Project. (1-5 cr; QP–5123, #; SP–4052, #)
Research project in physics area of contemporary interest. Project must be approved by faculty coordinator before registration.

Phys 4611. Introduction to Space Physics. (3 cr; QP–#; SP–2601, 4001, 4002)
Astrophysics of energetic particles in space, including cosmic rays and those of solar origin. Detection/identification experiments with matter/field particles in space. Acceleration, modulation, and propagation.

Phys 4621. Introduction to Plasma Physics. (3 cr; QP–5022, 5024 or #; SP–4001, 4002)
Magnetohydrodynamics and properties of collisionless plasmas with applications to the magnetic field of the earth and sun, and to plasma confinement. Transport phenomena and effects of collisions.

Phys 4711. Introduction to Optics. (3 cr; QP–5024 or #; SP–4002)
Modern theoretical and experimental optics broadly defined to include, for example, radio astronomy and particle accelerators. Matrix methods in geometrical optics including charged particle optics; optical detectors and noise; phenomena in intense coherent radiation including nonlinear effects.

Phys 4811. Introduction to Relativity and Cosmology. (3 cr; QP–5022, 5371 or #; SP–4001, 4411)
The construction of cosmological models directly from general relativity. Focus on the standard big-bang model. The connection between the early universe and particle physics explored in detail. Topics include big-bang nucleosynthesis, baryogenesis, inflation, and dark matter.

Phys 4940H. Senior Honors Seminar. (1 cr [max 3 cr]; QP–IT or CLA upper div honors, #; SP–Upper div honors, #; S-N only)
A seminar for upper division physics majors in the honors program.

Phys 5001. Quantum Mechanics I. (4 cr; QP–#; SP–5151; adv calc or #; SP–4101 or equiv)

Phys 5002. Quantum Mechanics II. (4 cr; QP–#; SP–5151 or equiv; SP–5001 or equiv)
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 theory.

Phys 5011. Classical Physics I. (4 cr; QP–5022, 5024, adv calc or #; SP–4001, 4002 or #)
Classical mechanics: Lagrangian and Hamiltonian mechanics, orbital dynamics, rigid body motion, special relativity.

Phys 5012. Classical Physics II. (4 cr; QP–#; SP–4001, 4002 or #)
Further topics in classical electromagnetism: electrostatics, magnetostatics, Maxwell’s equations, electromagnetic waves, radiation, interaction of charged particles with matter.

Phys 5024. Introduction to Electric and Magnetic Fields—Transitional Course. (2.67 cr; QP–5023; A–F only)
Classical theory of electromagnetic fields using vector algebra and vector calculus. This is a transitional course taught in fall 1999 only. It is open to students who completed Phys 5023 under quarter and need to finish the sequence under semesters.

Phys 5041. Analytical and Numerical Methods of Physics I. (4 cr; QP–Two 300 Math courses; SP–Grad or #)
Survey of mathematical techniques, both analytic and numerical, needed for physics. Application to physical problems.

Phys 5042. Analytical and Numerical Methods of Physics II. (4 cr; QP–#; SP–5041 or #)
Survey of mathematical techniques, both analytic and numerical, needed for physics. Application to physical problems.

Phys 5071. Physics for High School Teachers: Experimental Foundations and Historical Perspectives. (3 cr; QP–Gen physics, # or no for physics grad or grad physics minor; SP–Gen physics, # or no for physics grad or grad physics minor)
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.

Phys 5401. Physiological Physics. (4 cr; QP–General phys, calculus; SP–1301 or 1401)
Musculoskeletal system, circulatory system/membrane transport, biological control systems, propagation/action potential in nervous system, biomagnetism, electromagnetism at cellular level.

Phys 5402. Radioisotopes. (4 cr; QP–General physics, calculus; SP–1302 or 1402)
Signal analysis, medical imaging, medical X-rays, tomography, radiation therapy, nuclear medicine, MRI, and similar topics.

Phys 5701. Solid-State Physics for Engineers and Scientists. (4 cr; QP–1254, 3512, grad or advanced undergrad in physics or engineering or the sciences or #)
Modern or advanced undergrad in physics or engineering or the sciences)
Crystall structure and binding; diffraction; phonons; thermal and dielectric properties of insulators; free electron model; band structure; semiconductors.

Phys 5702. Solid State Physics for Engineers and Scientists. (4 cr; QP–5221 or #; SP–5703 or #)
Diamagnetism and paramagnetism; ferromagnetism and antiferromagnetism; optical phenomena; lasers; superconductivity; surface properties; ferroelectricity.

Phys 5950. Colloquium Seminar. (1 cr; QP–Grad or advanced undergrad in physics, Δ; SP–Grad or advanced undergrad in physics, Δ)
Musculoskeletal system, circulatory system/membrane transport, biological control systems, propagation/action potential in nervous system, biomagnetism, electromagnetism at cellular level.

Phys 5980. Introduction to Research Seminar. (1 cr [max 3 cr]; QP–Grad or upper div phys maj; SP–Grad or upper div phys maj)
Introduction to the research activities of the School of Physics and Astronomy.

Phys 5993. Directed Studies. (1-5 cr [max 15 cr]; QP–#; Δ; SP–#; A)
Independent, directed study in physics in areas arranged by the student and a faculty member.

Phys 5994. Directed Research. (1-5 cr [max 15 cr]; QP–#; Δ; SP–#; A)
Problems, experimental or theoretical, of special interest to students. Written reports.
**Physiology (Phsl)**

**Department of Physiology**

**Medical School**

**Phsl 1001. Human Physiology.** (3 cr; SP—High school chem, high school bio) How major organ systems function (nerve, muscle, circulation, respiration, endocrine, renal, gastrointestinal, temperature regulation and energy metabolism). Function in terms of mechanism. Ideas presented in terms of scientific concepts and methods, although a scientific background is not assumed.

**Phsl 3051. Human Physiology.** (4 cr; SP—One yr college chem, one yr college chem) For pre-allied health sciences majors. How major organ systems function (nerve, muscle, circulation, respiration, endocrine, renal, gastrointestinal, temperature regulation and energy metabolism). Fall offering emphasizes independent learning using e-mail extensively for information exchange between students and faculty. One-hour lecture, two-hour lab.

**Phsl 3061. Principles of Physiology.** (4 cr; SP—One yr college chem and physics and math through integral calculus) 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.

**Phsl 3071W. Principles of Physiology for Majors.** (5 cr; S–Ph physiology major, one yr college chem and physics and math through integral calculus; A-F only) 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. Papers on current topics of interest based on published laboratory research required.

**Phsl 3095. Problems in Physiology.** (1-5 cr [max 20 cr]; QP–Ph physiology major, one yr college chem and physics and math through integral calculus; A-F only) Individualized study in physiology. Students address a selected problem in physiology through library or lab research, supervised by physiology faculty.

**Phsl 3101. Introduction to Neurobiology I: From Molecules to Madness.** (3 cr; QP–Biol 3101, S–NSc 3101; Biol/NSc 3021 or Biol 3331, Biol 5004 or S–NSc 3101; S–NSc 3101; Biol/Bio 3021 or Bio 4331, Biol 4004 or #4004) Basic principles of cellular and molecular neurobiology and nervous systems.

**Phsl 3102. Introduction to Neurobiology II: Behavioral Basis of Behavior.** (3 cr; QP–Biol 3102, S–NSc 3102, S–NSc 3101 or Biol 3101 or 3331, S–NSc 3102, S–Biol 3102, S–NSc 3101 or Biol 3101 or NSc 3101; A-F only) Organization of neural systems and subsystems underlying the sensory and motor aspects of behavior.

**Phsl 4095. Honors Problems in Physiology.** (2-4 cr [max 4 cr]; QP–Phsl 3055, physiology honors candidate, permission of the director of undergraduate studies in physiology; SP–#3071, physiology honors candidate, permission of the director of undergraduate studies in physiology; A-F only) Students pursue a selected topic in physiology through library or laboratory research supervised by physiology faculty. Not suitable for graduate credit.

**Phsl 5061. Principles of Physiology for Biomedical Engineering.** (4 cr; QP—Biomedical engineering grad, one yr college chem and physics and math through integral calculus; SP—Biomedical engineering grad, one yr college chem and physics and math through integral calculus) 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.

**Phsl 5094. Research in Physiology.** (1-5 cr [max 20 cr]; QP–Phsl 3055, physiology undergrad, #–SP–#) Independent lab research project in physiology, supervised by physiology faculty.

**Phsl 5095. Problems in Physiology.** (1-5 cr [max 20 cr]; QP–Phsl 3055, physiology undergrad, #–SP–#) Individualized study in physiology. Students address a selected problem through library or lab research, supervised by physiology faculty.

**Phsl 5201. Computational Neuroscience I: Membranes and Channels.** (3 cr; QP–Calculus through differential equations; SP–Calculus through differential equations) Neural excitation (ion channels, excitation models, effects of neural morphology) using UNIX workstations to simulate experimental results. Includes the Hodgkin-Huxley model, nonlinear dynamic systems analysis, voltage and ligand gated ion channels, ion transport theories, and impulse initiation and propagation.

**Phsl 5202. Computational Neuroscience II: Neural Systems and Information Processing.** (3 cr; QP–Understanding of UNIX, Phsl/NSc 5201 or equiv; SP–Understanding of UNIX, neural systems and information processing, neural control systems, computational maps)

**Phsl 5444. Membrane and Muscle: Biochemistry and Physiology.** (3 cr; QP–MEDC 5444 or Biol 5444, SP/BPB 5444, SP/BPB 5442, SP/Biol 3101 or Biol 3101 or NSc 3101; A-F only) Quantitative examination of information processing by networks based on experimental data and theoretical models. Neural codes, neural network models and information processing, neural control systems, computational maps.

**Phsl 5251. Molecular and Cell Biology.** (5 cr; SP–Biol 5003 or GCB 5003, SP–Biol 4003 or GCB 4002; A-F only) Survey of state summer flowering plants and ferns with particular reference to local flora. Identification of important plant families using technical keys, and field recognition of common species and habitat preferences; collecting methods, literature, and taxonomic methods.


**Phsl 5493. Directed Research.** (1-7 cr [max 7 cr]; QP–A-F only) 10 cr max of 5970 or 5990 may count toward major; SP–F and/or A-F only) Individual study on selected topics or problems with emphasis on selected readings and use of scientific literature.

**Phsl 5494. Directed Research.** (1-7 cr [max 7 cr]; QP–A-F only) 10 cr max of 5970 or 5990 may count toward major; SP–F or A-F only) Individual study on selected topics or problems with emphasis on selected readings and use of scientific literature.

**Phsl 5109. Current Questions in Fungal Biology.** (2 cr; QP–Biol 5003 or GCB 3022; SP–Biol 4003 or GCB 3022; A-F only) Diversity of fungi and their interactions with other organisms. Pathogenic and mutualistic interactions with animals and plants. Use of fungal systems for drug discovery and understanding pathogenicity, signal transduction, morphogenesis, and evolution.

**Phsl 5221. Molecular Evolution.** (2 cr; QP–Biol 5003 or GCB 3022; SP–Biol 4003 or GCB 3022; A-F only) Molecular basis of evolutionary change. Current ideas of selection and neutral evolutionary processes. Construction of phylogenies as determined from DNA sequence data. Evolution of multigene families. Organelle genomes, novel gene function, and their relationship to development and organismal evolution.

**Phsl 5301. Plant Genomics.** (3 cr; SP–Intro course in genetics, intro course in biochemistry) or SP–Intro course in genetics, intro course in biochemistry) or SP–Intro course in genetics, intro course in biochemistry) or # Introduction to genomics. Emphasizes plants and relevant model organisms. DNA market/sequencing technology, comparative genomics, whole genome sequencing, DNA chips/arrays, EST libraries and SAGE analysis, gene-knockout systems, genome databases, sequence comparison/clustering algorithms, visualization tools.

**Phsl 5412. Plant Physiology.** (3 cr; QP–Biol 1103 or Biol 3102 or Biol 3812, Biol 5001 or Biol 5002 or Biol 3531; SP–Biol 5002 or Biol 3007, Biol/Bio 5002 or Biol 4003 or GCB 3022) Aspects of recombinant DNA technology and other technologies in cell and molecular biology. Appropriate for those without extensive background in these areas but who wish to understand the potential uses of current cell and molecular technologies in the plant sciences.

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**Course Descriptions**

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For definitions of course numbers, symbols, and abbreviations, see page 289. 425
Environmental Sciences

Chem 1051, 1052; SP–Biol 1009 or equiv, Chem 1021, or Biol 3007)
Assessment; public ethics and decision making.

Crops and forests; air pollution control and climate change; air pollution effects on human health,
History of air pollution, its sources and types; global
Science and the Ethics.

PlPa 3003. Diseases of Forest and Shade Trees. (3 cr)
Diseases of trees in urban and forested areas. Biology, ecology and control of tree diseases. Labs provide experience identifying disease agents and learning appropriate integrated control procedures.

PlPa 3090. Research in Plant Pathology. (2-4 cr)
Assignment of special problems to undergraduates desiring opportunity for independent research in plant pathology.

PlPa 4000. Plant Pathology Practicum. (1-3 cr; max 5 cr; QP–3001 or 3002, environmental hort majors should be jr or sr; SP–2000 or 2002, environmental hort majors should be jr or sr)
Analysis and identification of plant disease problems facing horticultural or agricultural enterprises. Develop procedures and practices that have the potential to improve existing programs for plant disease management in those businesses.

PlPa 4096. Professional Experience Program: Internship. (1-3 cr; max 6 cr; QP–COAFES undergrad, complete internship contract available in COAFES Career Services before registering; UC only; SP–COAFES undergrad, complete internship contract available in COAFES Career Services before registering; UC only; S-N only)
Supervised practicum with professional experience in plant pathology and related industries including the Plant Disease Management, Cotton, Research, and Development. Involves research projects, field trips and educational presentations for a diverse group of students.

PlPa 5102. Epidemiology and Plant Disease Resistance. (3 cr; QP–5201 or equiv; SP–5201 or equiv)

PlPa 5103. Physiological and Molecular Plant-Microbe Interactions. (3 cr)
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.

PlPa 5201. Introductory Plant Pathology for Horticulturists. (3 cr; QP–Biol 1009 or equiv; SP–Biol 1009 or equiv)
Pathogens that cause plant disease; symptoms resulting when susceptible plants and causal agents interact, roles the environment and physico-chemical stresses have on incidence and severity of plant disease, and examples of how techniques of plant disease control may be integrated.

PlPa 5202. Management and Control of Field Crop Diseases. (3 cr; QP–Biol 1009 or equiv; SP–Biol 1009 or equiv)
Dynamics of plant pathogens, their control in plant diseases. Crop rotation, tillage (i.e., small grain, corn, soybeans, potatoes, sugar beets, dry beans) are found in common rotations practiced in Minnesota.

PlPa 5301. Plant Disease Biology and Management. (1 cr; QP–Biol 1009 or equiv; SP–Biol 1009 or equiv)
Introduction to organisms that cause plant diseases. Symptoms of plant diseases, economic losses due to plant diseases, and chemical and biological strategies for managing plant diseases will be discussed.

PlPa 5302. Air Pollution, People, and Plants: The Science and the Ethics. (3 cr; QP–Biol 1009 or equiv, Chem 1001, 1002; SP–Biol 1009 or equiv; Chem 1021, 1022) History of air pollution, its sources and types; global climate change; air pollution effects on human health, crops and forest ecosystems; control and international perspective; risk perception and assessment; public ethics and decision making.

PlPa 5303. Diseases of Forest and Shade Trees. (3 cr)
Diseases of trees in urban and forested areas. Biology, ecology and control of tree diseases. Labs provide experience identifying disease agents and learning appropriate integrated control procedures.

PlPa 5309. Research in Plant Pathology. (2-4 cr)
Assignment of special problems to undergraduates desiring opportunity for independent research in plant pathology.

PlPa 5400. Plant Pathology Practicum. (1 cr; max 5 cr; QP–3001 or 3002, environmental hort majors should be jr or sr; SP–2000 or 2002, environmental hort majors should be jr or sr)
Analysis and identification of plant disease problems facing horticultural or agricultural enterprises. Develop procedures and practices that have the potential to improve existing programs for plant disease management in those businesses.

PlPa 5406. Professional Experience Program: Internship. (1-3 cr; max 6 cr; QP–COAFES undergrad, complete internship contract available in COAFES Career Services before registering; UC only; SP–COAFES undergrad, complete internship contract available in COAFES Career Services before registering; UC only; S-N only)
Supervised practicum with professional experience in plant pathology and related industries including the Plant Disease Management, Cotton, Research, and Development. Involves research projects, field trips and educational presentations for a diverse group of students.

PlPa 5993. Directed Readings. (1-3 cr)
Guided individual reading or study in Polish language, literature, and culture.

Polish (Pol)

Department of Political Science

Polish Language and Literatures

College of Liberal Arts

Pol 1101. Beginning Polish. (4 cr)
Develop basic proficiency in listening, speaking, reading, and writing and become acquainted with Polish culture. First of four courses designed to satisfy CLA language graduation requirement.

Pol 1102. Beginning Polish. (4 cr; SP–1101 or equiv)
Develop basic proficiency in listening, speaking, reading and writing and to acquaint students with Polish culture. Second of four courses designed to satisfy CLA language graduation requirement.

Pol 3001. Intermediate Polish. (4 cr; SP–1102 or equiv)
Conversation, composition, advanced grammar, translation, and readings in appropriate literature. Third of four courses designed to satisfy CLA language graduation requirement.

Pol 3002. Intermediate Polish. (4 cr; SP–3001 or equiv)
Conversation, composition, advanced grammar, translation, and readings in appropriate literature. Fourth in a sequence of courses designed to satisfy CLA language graduation requirement.

Pol 3601. Survey of Polish Literature: Baroque through Romanticism. (3 cr)
Reading and analysis of major works of Polish literature from Baroque through Romanticism.

Pol 3602. Survey of Polish Literature: 1863 to the Present. (3 cr)
Reading and analysis of major works of Polish literature from 1863 to the present.

Pol 5900. Topics. (3 cr)
Topics specified in Class Schedule.

Pol 5993. Directed Readings. (1-3 cr)
Guided individual reading or study in Polish language, literature, and culture.

Political Science (Pol)

Department of Political Science

College of Liberal Arts


Course Descriptions

Pol 1015. Mass Politics in a Media Age. (3 cr)
Examines how American public opinion, political participation, and political institutions are shaped by the mass media and newer media technologies. Explores the historical role of media in American politics and how that relationship has changed over time.

Pol 1025. Global Politics. (4 cr)
Study of international relations and issues in contemporary world affairs. Forms of state interaction from violent conflict to cooperation and integration; activities of international institutions; transnational relations involving non-state actors such as international businesses, human rights networks, and environmental movements.

Pol 1026. We and They: U.S. Foreign Policy. (4 cr)
Contemporary foreign policy issues; how the United States makes foreign policy in a global era; historical background. How two regions (such as the Middle East and China) affect and are affected by U.S. policy.

Pol 1054. Repression and Democracy Around the World. (4 cr)
Introduction to political life in all its worldwide variety. Focus on repression, democracy, rights, corruption, gender, and political change. Guest lectures by political science professors who are experts on different parts of the world. Non-majors welcome.

Pol 1065. Government and Medicine. (3 cr)
Structure of American government as background for competing models of health policy making. Political struggles over government policy as means for peacefully reconciling competing interests, demands, and values. Threats to (a) technocratic assumption that experts are best equipped to make national policy and (b) democratic principle/practice of popular consent and wide political participation/conflict.

Pol 1201. Political Ideas and Ideologies. (4 cr)
Analysis of key concepts and ideas (e.g., freedom, equality, democracy) as they are constructed by major theories and ideologies (liberalism, conservatism, socialism, etc.).

Pol 1902. Topics: Freshman Seminar. (3 cr; SP–Fr or max 36 cr; A-F only) Topics specified in Class Schedule.

Pol 1903. Freshman Seminar. (3 cr; A-F only) Topics specified in Class Schedule.

Pol 1908W. Topics: Freshman Seminar. (3 cr; SP–Fr or no more than 36 cr; A-F only) Topics specified in Class Schedule.

Pol 1909W. Topics: Freshman Seminar. (3 cr; SP–Fr or max 36 cr; A-F only) Topics specified in Class Schedule.

Introduction to major concepts and issues in political science including political participation, policy making; justice, legitimacy, political development, and types of political systems. Explore empirical and normative problems and compare among major countries.

Pol 3070. Faculty-Supervised Individual Field Work. (1-12 cr [max 12 cr]; SP–§; A-F only) Faculty-supervised research related to work in political or governmental organizations.

Pol 3080. Faculty-Supervised Individual Internships. (4-12 cr; max 15 cr; SP–§; A-F only) Internship with government or community organizations arranged by the department and awarded competitively each spring semester.

Pol 3085. Quantitative Analysis in Political Science. (4 cr; SP–§9 cr in social sciences or A-F only) Introduction to empirical research techniques, or how one tests a political hypothesis using data. Topics such as setting up a research question in political science, proper research design, and some basic techniques of data analysis.

Pol 3109H. Honors Course: Researching Politics. (3 cr; SP–§1099; jr, pol sci, honors; A-F only) Giving students a start on their honors theses. Research design, methods of data collection/analysis, strategies for scholarly writing. Meets each spring.

Pol 3110H. Honors Thesis Credits. (1-4 cr [max 4 cr]; SP–§1109; sp, sci, honors; A-F only) Individual research/writing of departmental honors thesis.

Pol 3210. Practicum. (1-3 cr [max 6 cr]; SP–#) Offers different kinds of out-of-class opportunities to complement the readings, assignments, and objectives of a parent course in political science. Opportunities vary according to demands of the parent course.

Pol 3215. Current Controversies and Problems in Politics. (3-4 cr)
Exploration and examination of contemporary controversies in American politics (e.g., affirmative action, health care, abortion, euthanasia) as they affect questions of citizenship and cultural diversity.

Pol 3225. American Political Thought. (3-4 cr)
Unitary American Constitution, pro- and anti-slavery arguments, civil war and reconstruction, industrialism, westward expansion, Native Americans, immigration, populism, socialism, social Darwinism, women’s suffrage, red scares, Great Depression. United States as world power, free speech, pluralism, and multiculturalism.

Pol 3235W. Democracy and Citizenship. (3-4 cr; SP–1201 recommended) Surveys models of democracy based on individual rights; pluralism; civic republicanism; community activism. Examines dilemmas of democratic government and citizenship in a race, class, and gender-stratified society; explores its possibilities in a changing world.


Pol 3252. Renaissance, Reformation, and Revolution: Early Modern Political Thought. (3-4 cr; SP–§5252) Thinkers, themes, and discourses from the Renaissance to the French Revolution. Renaissance Humanists; Machiavelli; More; Reformation; Luther; Calvin; Natural Law; Grotius; Divine Right; Common Law; Bacon; English Revolutionaries; Hobbes; Locke; Astell; Enlightenment; Rousseau; French Revolutionaries; Hume; Burke; Wollstonecraft.

Pol 3253. Modernity and Its Discontents: Late Modern Political Thought. (3-4 cr; SP–13253) Theoretical responses to and rival interpretations of Western economy, society, politics, and democratic culture in the modern age; theories of history; class struggle; end of metaphysics and death of God; technology and bureaucracy; psychology of culture in Hegel, Marx, Tocqueville, Mill, Nietzsche, Weber, Freud.

Pol 3321. Issues in American Public Policy. (3 cr; SP–1001 or equiv or #) Analysis of the politics of the policy process including agenda formation, formulation, adoption, implementation, evaluation. Attention to selected policy areas.

Pol 3322. Political Tolerance in the United States. (3-4 cr) Political importance of civil liberties in American society. Tolerance as a political phenomenon. Issues such as free speech, privacy, religion, race, gender.

Pol 3352W. Fieldwork in the Legislature. (3 cr; SP–1001 or equiv) Field study of Minnesota Legislature; campaigns and elections, party leadership, committee structure, staffing, lobbying, relations with other branches. Students arrange work assignments with legislators.

Pol 3441. Politics of Environmental Protection. (3 cr; SP–§4411; jr or sr social science major) How the American political system deals with environmental issues, how third world countries deal with problems of environmental protection and economic growth, and the way the international community deals with global environmental problems.

Pol 3451W. Politics and Society in the New Europe. (3 cr; SP–§3051 or Soc 1001 or #) How the changing political and social landscape of the new Europe. Particular focus on governmental change and values, political parties, welfare state, the future of European integration, and political stability and democratization.

Pol 3477. Political Development. (3-4 cr; SP–1054 or #) Political processes and problems associated with economic development; the political economy of underdevelopment and development; problems of state building and the development of political institutions.

Pol 3491. Film and the Study of Latin American Politics. (3 cr; SP–1054 recommended) Introduction to using film to study Latin American politics. Hollywood films explore how the United States “sees” Latin America, its people, and its political problems; films from Latin America explore how Latin American popular culture reflects a country’s political issues. One feature film per week. Brief readings about issues raised by each film.

Pol 3739. Politics of Race, Class, and Ethnicity. (3-4 cr; SP–Fr in social science) An introductory examination of how race, ethnicity, and class interact in the political process with particular attention to political conflict through comparative analysis of the United States, South Africa, and Brazil.

Pol 3751. Fieldwork in Politics. (3 cr; SP–1001 or equiv or #) Field study of political organizations, leadership, campaigns. Students arrange work assignments with candidates.

Pol 3766. Political Psychology. (3 cr; SP–1001 or equiv or #) Examines how political behavior of citizens and political elites is shaped by psychological factors including personality, attitudes, values, emotions, and cognitive sophistication. Topics include political activism and apathy, leadership charisma, mass media, group identifications, and political culture.

Pol 3835. International Relations. (3 cr) Introduction to the theoretical study of international relations. Students learn to appreciate how the choice of theoretical perspectives shapes one’s understandings of the structure and practices of global politics.

Pol 3872W. Global Environmental Cooperation. (3-4 cr; SP–§5872) Emergence of the environment as a key aspect of the global political agenda. Non-governmental and governmental international organizations. Politics of protection of the atmosphere, rain forest, seas, and other selected issues. International security and the environment.

Pol 3873W. Global Citizenship and International Ethics. (3 cr) Case studies of ethics in intervention, war, weapons, foreign aid, environmental practices, and human rights are used to examine the global ethical responsibilities of individual citizens and public officials; effectiveness of transnational social movements in influencing policy at domestic and international levels.

Pol 4210. Topics in Political Theory. (0 cr; SP–§4210, A-F only) Course varies according to demands of the parent course.

Pol 4275. Contemporary Political Thought. (3-4 cr; SP–1201 recommended) The 20th-century crisis of Western humanism in major works of contemporary political thought from World War II to the present. Relationships between force and freedom; ideology and truth; authority and resistance. Thinkers may include Arendt, Camus, Beauvoir, Fanon, Foucault, Habermas, Rawls, Sartre, Said. Ideas may include communitarianism, feminism, postcolonialism, postmodernism, socialism.

Pol 4280. Topics in Political Theory. (3-4 cr [max 8 cr]) Topics in historical, analytical, or normative political theory. Topics vary.
Portuguese (Port)

Department of Spanish and Portuguese Studies

College of Liberal Arts

Port 1101. Beginning Portuguese. (4 cr) Speaking and understanding Portuguese; pronunciation; introduction to writing and reading; basic grammar; cultural aspects of language and civilizations of Portuguese-speaking world.

Port 1102. Beginning Portuguese. (4 cr; SP–1101 or #) Speaking and understanding Portuguese; pronunciation; introduction to writing and reading; basic grammar; cultural aspects of language and civilizations of Portuguese-speaking world.


Port 1104. Intermediate Portuguese. (4 cr; SP–1103 or #) Speaking and comprehension. Development of reading and writing skills based on materials from Portugal and Brazil. Grammar review; compositions and short presentations.

Port 3001. Portuguese for Spanish Speakers. (4 cr; SP–Span 3015, GPT) or # (for speakers of other Romance languages) Based on student’s knowledge of Spanish. Contrastive approach to Portuguese phonic/morpho-syntactic structures.


Port 3501V. Honors: Foundations of Lusophone Cultures. (3 cr; SP–3003 or Span 3003, honors; A-F only) Foundations of Portuguese-speaking cultures (Portugal, Brazil, Lusophone Africa) from origins to present. Social/cultural trends that are basis for modern Portuguese-speaking world (literature, history, cinema, music).

Port 3501W. Foundations of Portuguese Cultures. (3 cr; SP–3003) Foundations of Portuguese-speaking cultures (Portugal, Brazil, Lusophone Africa) from origins to present. Social/cultural trends that form basis for modern Portuguese-speaking world (literature, history, cinema, music).

Port 3502V. Honors: Foundations of Brazilian Culture. (3 cr; SP–3003 or equiv; honors; A-F only) Emphasizes modern Brazilian society. History, culture (e.g., music, art, cinema, literature, intellectual thought, popular culture, media), social problems (e.g., ethnicity, tropical deforestation).

Port 3502W. Foundations of Brazilian Culture. (3 cr; SP–3003 or equiv) Emphasis on modern Brazilian society. History, culture (music, art, cinema, literature, intellectual thought, popular culture, media), and social problems (e.g., ethnicity, tropical deforestation).

Port 3503V. Honors: Literatures and Cultures of Lusophone Africa. (3 cr; SP–3003; A-F only) Origins/development of Lusophone Africa (Angola, Cape-Verde, Guinea-Bissau, Mozambique, Sao Tome, Principe) using literature, cultural/literary criticism, history, anthropology, and various media (e.g., film, art, music, Internet).

Port 3503W. Literatures and Cultures of Lusophone Africa. (3 cr; SP–3003) Origins/development of Lusophone Africa (Angola, Cape-Verde, Guinea-Bissau, Mozambique, Sao Tome/Principe) using literature, cultural/literary criticism, history, anthropology, and various media (film, art, music, Internet).


Port 3910. Topics in Lusophone Literatures. (3 cr [max 9 cr]; SP–3003) Critical reading of Lusophone literary texts (Brazil, Portugal, Portuguese-speaking Africa) representing various genres (novel, short story, poetry). Terminology of criticism, literary problems, techniques.

Port 3910H. Honors: Topics in Lusophone Literatures. (3 cr [max 9 cr]; SP–3910H; 3501 or 3502 or 3503; honors; A-F only) Critical reading of Lusophone literary texts (from Brazil, Portugal, Portuguese-speaking Africa) representing various genres (e.g., novel, short story, poetry). Terminology of criticism, literary problems, techniques.

Port 3970. Directed Readings. (1-4 cr [max 9 cr]; SP–3501 or 3502 or 3503 or 3910) Guided individual reading or study.

Port 5520. Portuguese Literary and Cultural Studies. (3 cr [max 9 cr]; SP–) Study of origins and 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.

For definitions of course numbers, symbols, and abbreviations, see page 289.
Course Descriptions

Psy 3005W. Introduction to Research Methods and Statistics. (4 cr: QP–1001, SP–1001; A-F only)
Introduction to concepts and procedures in the conduct and evaluation of psychological research. Emphasis on research methods, the use of statistics to inform the description and interpretation of psychological inquiry, and the scientific evaluation of evidence and claims in psychology.

Psy 3011. Introduction to Learning and Behavior. (3 cr: SP–1001)
Basic methods and findings of research on learning and behavior change. Survey of 20th-century theoretical perspectives, including contemporary models. Emphasis on animal learning and behavioral psychology.

Psy 3031. Introduction to Sensation and Perception. (3 cr: QP–1004, SP–1001)
Psychological, biological, and physical bases of sensory experience in humans and animals. Emphasis on the senses of vision and hearing.

Psy 3051. Introduction to Categorical Psychology. (3 cr: QP–1001; SP–1001)
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.

Psy 3061. Introduction to Biological Psychology. (3 cr: QP–5061; 1001 or Biol 1009; SP–5061; 1001 or Biol 1009)
Basic neurophysiology/neuroanatomy, neural mechanisms of motivation, emotion, sleep-wakefulness cycle, learning/memory in animals/humans. Neural basis of abnormal behavior, drug abuse.

Psy 3101. Introduction to Personality. (3 cr: QP–1001; SP–1001)
Major theories, issues, and facts about personality and personality assessment. Review of important historical and contemporary perspectives on human nature and human individuality such as psychoanalysis, humanistic psychology, trait psychology, behaviorism, and cognitive psychology.

Psy 3135. Introduction to Individual Differences. (3 cr: QP–3031 or #; SP–3031 or #)
Differential methods in studying human behavior. Overview of psychological traits. Influence of age, sex, heredity, and environment in individual/group differences in ability, personality, interests, and social attitudes.

Psy 3137. Readings in Behavioral Genetics. (1 cr: SP–5137)
This course may be taken as an optional supplement to lecture courses in behavioral genetics (5137). Each week students will read one or two articles relevant to topics covered in the lecture and discuss the articles with the instructor during a one hour contact session. Readings will not overlap those assigned in the lecture class.

Psy 3201. Introduction to Social Psychology. (4 cr: QP–1001; SP–1001)
Overview of theories and research in social psychology with emphasis on attitudes and persuasion, social judgment, the self, social influence, aggression, prejudice, helping, and applications.

Psy 3301. Introduction to Cultural Psychology. (3 cr: QP–1001; 1005, 3801 or #; SP–1001, 3005 or #; A-F only)
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, introduction to basic concepts of other disciplines (e.g., anthropology, public health, sociology).

Psy 3604. Introduction to Abnormal Psychology. (3 cr: QP–5604; 1001; SP–5604; 1001)
Diagnosis, classification, etiologies of behavioral disorders.

Psy 3617. Introduction to Clinical Psychology. (3 cr: QP–3604 or 5604; SP–3604 or 5604)

Psy 3666. Human Sexuality. (3 cr: QP–1001, SP–1001)
Overview of theoretical and clinical perspectives on human sexuality and sexual behavior, including cognitive, psychological, and biological aspects.

Psy 3711. Introduction to Industrial and Organizational Psychology. (3 cr: SP–3005 or 4801 or equiv; 1001 or #)
Application of psychological theory and research to recruitment, personnel selection, training and development, job design, group work design, group motivation, leadership, performance assessment, and job satisfaction measurement.

Psy 3902W. Major Project in Psychology. (4 cr: QP–1005, 3801, [psychology major or sp psychology major] SP–3005, [psychology major or sp psychology major] A-F only)
Seminar for completing undergraduate major project paper.

Psy 3960. Undergraduate Seminar. (1-5 cr: max 45 cr; QP–1001, SP–1001)
Current topics in psychology. Topics listed in psychology office.

Psy 3993. Directed Study. (1-6 cr: max 24 cr; QP–, A, Q SP–, X, X)
Independent reading leading to paper or to oral or written exam.

Psy 3994. Directed Research. (1-6 cr: max 24 cr; QP–, A, X SP–, X, X)
Individual empirical project leading to written report.

Psy 3996. Undergraduate Field Study/Internship in Psychology. (1-6 cr: max 12 cr; QP–1001, SP–1001, A-F only)
Supervised field/internship experiences in the community or industry pertinent to formal academic training in psychology.

Psy 4011. Applied Behavioral Psychology. (3 cr: QP–3011 or #; SP–3011 or #)
Fundamental concepts of behavioral psychology. Practical techniques of behavior modification with humans/animals. Emphasizes functional analyses of behavior deficits/excesses, development/implementing intervention approaches to bring about meaningful behavior change.

Psy 4036. Perceptual Issues in Visual Impairment. (3 cr: SP–1001 or #)
Contemporary knowledge on visual, tactile, and auditory perception informs us about the challenges and capabilities of people who are blind or have low vision. Topics include reading, space perception, mobility, and the strengths and weaknesses of pertinent adaptive technology.

Psy 4133. Psychological Testing and Assessment. (3 cr: QP–1005, 3801 or #; SP–1005, 3005 or #; A-F only)
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.

Psy 4501. Psychology of Women. (3 cr: QP–1001 or #; SP–1001 or #)
Survey of current topics in psychology and related sciences. (1-6 cr [max 16 cr]; QP–SP–)
Directed Studies. Special area of psychology or a related science.

Psy 4994. Honors Research Practicum. (4 cr: QP–1005, 3801, honors psych; SP–3005, honors psych)
Practical experience conducting psychological research. Preparation for completion of honors thesis. Instruction in research ethics, practical aspects of conducting psychological research, writing research reports. Assist faculty, advanced graduate students in research.

Psy 4996H. Honors Internship/Externship. (3 cr: QP–, SP–, Honors, #; A-F only)
Supervised internship/externship experience in a community-service or industrial setting relevant to formal academic training/objectives.

Psy 5012W. Psychology of Conditioning and Learning. (4 cr: QP–3011 or 4011 or grad student or #; SP–3011 or 4011 or grad student or #)
Review/evaluation of key questions, methods, theories, data analysis, and current perspectives in conditioning, instrumental learning, elementary cognitive processes. Emphasizes animal models.

Psy 5013. Laboratory in Conditioning and Learning. (4 cr: QP–[1005 or grad student], 3011 or #; SP–[3005 or grad student], 4011 or #; X)

Psy 5014. Psychology of Human Learning and Memory. (3 cr: SP–3011 or 3051, except honors, grad)
Survey of basic methods and findings of research on human learning, memory, and cognition. Emphasis on major factors influencing human encoding or acquisition of information and skill, retention, and retrieval. Theoretical perspectives on underlying processes of encoding, storing, and retrieval.

Psy 5015. Cognition, Computation, and Brain. (3 cr: QP–[3051 or 5014] except for honors/graduate students; SP–3051 [except for honors/graduate students])
Human cognitive abilities (perception, memory, attention) from different perspectives (e.g., cognitive psychological approach, cognitive neuroscience approach).

Psy 5031W. Perception. (3 cr: SP–3031 or 3051 or #)
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.

Psy 5034. Psychology of Vision. (3 cr: SP–3031 or #)
Analysis of the properties and biological bases of visual perception in humans and animals. Emphasis on color vision, visual sensitivity and adaptation, nerve cells and circuits in the eye, structure and function of the visual brain.

Psy 5036. Computational Vision. (3 cr: QP–[3031 or 3051]; Math 1272 or equiv) or SP–[3031 or 3051]; Math 1272 or equiv) or #)
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.

Psy 5036W. Computational Vision. (3 cr: QP–[3031 or 3051]; Math 1272 or equiv) or SP–[3031 or 3051]; Math 1272 or equiv) or #)
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.

Psy 5037. Psychology of Hearing. (3 cr: QP–3031 or #; SP–3031 or #)
Biological and physical aspects of hearing, auditory psychophysics, theories and models of hearing, perception of complex sounds including music and speech, clinical, and other applications.
Psy 5038W. Introduction to Neural Networks. (3 cr; QP–[3061 or NSC 3102]; Math 2243 or SP–[3061 or NSC 3102]; Math 2243 or grad student or #) 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.

Psy 5051W. Psychology of Human-Machine Interaction. (3 cr; SP–3031 or 3051 or #) Psychological perspectives on human-machine interaction and factors that limit performance. Cognitive and perceptual aspects of computer use, telepresence, and design and evaluation of sensory aids.

Psy 5054. Psychology of Language. (3 cr; QP–3011 [except for honors/graduate students] SP–[3005 or #] [except for honors/graduate students]) Theories/exepectations in past/present conceptions of psychology of language.

Psy 5061. Biological Psychology. (3 cr; QP–§3061; 1005 or Biol 1009 or #; SP–§3601; 3005 or Biol 1009 or #) Physiological/neuromechanisms underlying behavior of animals, including humans. Neural basis of learning/memory, sleep, wakefulness, and attention processes. Effects of drugs on behavior.


Psy 5064. Brain and Emotion. (3 cr; QP–3061 or 5061 or #; SP–3061 or 5061 or #; A-F only) Introduction to affective neuroscience. Foci on how brain promotes emotional behavior in animals/humans. Biological theories of emotion reviewed in historical, current theoretical contexts. Research related to specific “basic” emotions, including brain substrates for fear, sadness, pleasure, attraction. Implications for understanding emotional development, vulnerability to psychiatric disorders.

Psy 5101. Personality Psychology. (3 cr; QP–§3101; 5862 or #; 5862, honors or grad; SP–3101; 3005, honors or grad) Theories and major issues and findings on personality functioning, personality structure, and personality assessment. A presentation of historically important and currently influential perspectives.

Psy 5121. History and Systems of Psychology. (3 cr; QP–§3801 or §3601 or §3711, 3005 or #; SP–§3801 or §3601 or §3711, 3005 or #) 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.

Psy 5135. Psychology of Individual Differences. (3 cr; QP–[3801 or equiv], 5862 or #; §5862 or §3801 or equiv, 5862 or #) Differential methods in study of human behavior. Overview of nature of psychological traits. Influence of age, sex, heredity, and environment in individual/group differences in ability, personality, interests, and social attitudes.

Psy 5136. Human Abilities. (3 cr; QP–3135 or 3135, 5862 or equiv or §; SP–3135 or 5135, 5862 or equiv or #) Theory, methods, and applications of research in human abilities, intelligence, aptitude, achievement, specific abilities, information processing/learning and intelligence, aptitude/interest, interaction treatments, and quantitative measurement issues.

Psy 5137. Introduction to Behavioral Genetics. (3 cr; QP–3135 or 3135 or #; SP–4801 or equiv or #) Overview of genetic methods for studying human and animal behavior. Emphasis on the nature and origin of individual differences in behavior. Twin and adoption methods as well as more modern methods like cytogenetics, molecular genetics, and linkage and association studies.

Psy 5138. Psychology of Aging. (3 cr; QP–3801; §3805 or equiv) Theories/findings concerning age-related changes in mental health, personality, cognitive functioning, productivity are reviewed/interpreted within context of multiple biological, social, psychological changes that accompany age.

Psy 5202. Attitudes and Social Behavior. (3 cr; QP–3201 or #; SP–3201 or #; A-F only) Theory/research in social psychology, other fields in psychology of attitudes, beliefs, values. These fields’ relationship to social behavior. Principles/theories of persuasion.

Psy 5204. Psychology of Interpersonal Relationships. (3 cr; QP–3201 or #; SP–3201 or #; A-F only) Introduction to interpersonal relationship theory and research findings, with emphasis on conceptual and methodological issues in relationship research.

Psy 5205. Applied Social Psychology. (3 cr; QP–3201 or grad student or #; SP–3201 or grad student or #) Applications of social psychology research/theory to domains such as physical/mental health, education, the media, desegregation, the legal system, energy conservation, public policy.

Psy 5206. Social Psychology and Health Behavior. (3 cr; QP–3201 or grad student or #; SP–3201 or grad student or #; A-F only) Survey of social psychological theory/research pertaining to processes by which people develop beliefs about health/illness. Relationship between these beliefs, adoption of health-relevant behaviors. Effect of psychological factors on physical health.

Psy 5207. Personality and Social Behavior. (3 cr; QP–3101 or 3061 or #; SP–3101 or 3061 or #; A-F only) Conceptual/methodological strategies for scientific study of individuals and their social worlds. Applications of theory/research to issues of self, identity, and social interaction.

Psy 5501. Vocational Psychology. (3 cr; QP–3801 or #; SP–3005 or #) Survey of concepts, theories, methods, findings of vocational psychology. History. Individual differences. Vocational development, device, adjustment. Vocational assessment/counseling.

Psy 5604. Abnormal Psychology. (3 cr; QP–3604; #; honors or student or #; SP–3604; honors or student or #) Comprehensive review of psychopathological disorders. Etiology, diagnostic criteria, psychological research findings.

Psy 5606. Clinical Psychophysiology. (3 cr; QP–3005 or equiv, 3061, 3064 or #) How psychophysiological methods such as autonomic and central nervous system recording are used in the study of major psychopathological disorders.

Psy 5701. Organizational Staffing and Decision Making. (3 cr; QP–3801, 3801, 3711 or psy; SP–3005 or 4801 or equiv, 3711 or #) Application of psychological research/theory to issues in personnel recruitment/selection and to measurement of job performance. Applying principles of decision making, psychological measurement to decision making in organizations (recruitment, selection, performance appraisal).

Psy 5702. Psychological Foundations of Individual Behavior in Organizations. (3 cr; QP–3801, 3801, 3711 or psy; SP–3005 or 4801 or equiv, 3711 or #) Theory/research on human behavior/performance in organizations. Organizational socialization processes across career span, leadership styles/processes, work team structures/characteristics. Problem-solving, decision-making processes. Group dynamics, intergroup relations.

Psy 5703. Psychology of Organizational Training and Development. (3 cr; QP–3711, 4801 or equiv or #) Theories, methods, and research pertaining to improving performance of individuals at work through learning and instruction; training-needs analysis, models of instructional design, aptitude-treatment interactions, measurement of training outcomes, training evaluation, knowledge structures, specific training programs designed for critical training problems.

Psy 5705. Psychology of Work Motivation. (3 cr; QP–3801 or equiv, 3711 or #; SP–4801 or equiv, 3711 or #) Motivation issues related to the behavior and performance of individuals in organizational settings. Contemporary work motivation theories and practices that relate person factors and environmental factors to skill acquisition, job performance, organizational citizenship behavior, and job satisfaction.

Psy 5862. Psychological Measurement: Theory and Methods. (3 cr; QP–3801 or equiv, honors or grad or #; SP–4801 or equiv, honors or grad or #; A-F only) Types of measurement (tests, scales, inventories) and their construction; theory and measurement of reliability and validity.


Psy 5960. Topics in Psychology. (1-4 cr; QP–1001; SP–1001, # or grad or student) Special class or seminar. Topics listed in psychology office.

Public Affairs (PA)

Hubert H. Humphrey Institute of Public Affairs

PA 1490. Topics in Social Policy. (1-3 cr [max 9 cr]) Topics in social policy.

PA 1961W. Personal Leadership in the University. (3 cr; SP–Fr or soph) Introduction to leadership theory, personal development, interpersonal relations, leadership at University of Minnesota. Personal assessment, written/verbal presentation, resume writing, electronic communication, goal setting, coping with group dynamics.

PA 3311W. Introduction to Public Policy Analysis. (3 cr; QP–Epic 1101 or Econ 1101; SP–Epic 1101 or Econ 1101; A-F, only) Elements of public policy analysis, policy analysts’ roles, market failure, public choice, bureaucratic decision making, and public services.

PA 3401. The Arts of Liberty: Educating for Democracy in Information Age. (3 cr) “Hands-on” approach to education for democracy. Core concepts and their different meanings in American history, especially ideas of freedom, work, and democracy. Students participate in community projects, either through the Jane Addams School or as “democratic coaches” for teams of young people. Two essays and a journal.

PA 3961W. Leadership, You, and Your Community. (3 cr; QP–Fr or soph; SP–Fr or #) Leadership and leadership capacities; multicultural and multidimensional perspectives. Students examine their views on leadership. Leadership theory/practice; group dynamics/behavior; applying knowledge to practice.

PA 4190. Topics in Public and Nonprofit Leadership and Management. (3 cr [max 9 cr]) Topics in public/nonprofit leadership/management.

PA 4200. Urban and Regional Planning. (3 cr) Fundamental principles of urban/regional land-use planning. Introduction to planning theory and its applications. Political-economic context of urban/regional planning.
PA 4290. Topics in Planning. (1-3 cr [max 12 cr]) Topics in social policy.

PA 4490. Topics in Social Policy. (1-3 cr [max 9 cr]) Topics in social policy.

PA 4961W. Self-Developed Leadership in the World. (3 cr; SP–Self-Developed)

Leadership theory, community building/social change systems thinking. Students conduct/present research on leadership models through literature review, internships, and study groups. Student groups produce major deliverables desiging research project. Participants assemble portfolio.

PA 5001. Intellectual Foundations of Public Action. (1.5 cr; SP–Major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Evolution of intellectual approaches that underlie public planning, management, and policy analysis as strategies for public action. How public decision making is shaped by knowledge and values; role of rationality. Conceptual approaches to public action along descriptive/normative lines and structure/ process lines.

PA 5002. Introduction to Policy Analysis. (1.5 cr; SP–Major in publ aff or publ policy or sci, tech, and environ pol or urban and regional planning or publ hth or # A-F only)

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; SP–Major in publ aff or publ policy or sci, tech, and environ pol or urban and regional planning or publ hth or # A-F only)

Basic finance and accounting concepts and tools used in public and nonprofit organizations. Fund accounting, balance sheet and income statement analysis, budget analysis, and public sector and nonprofit sector budgeting processes. Lectures and discussions, as well as cases and examples from nonprofit and public sector organizations.

PA 5004. Introduction to Planning. (3 cr; SP–Major in [publ aff or publ policy or [sci,tech], and environ policy or [urban and regional planning] or publ hth or # A-F only)

History, institutional development of urban planning as a profession. Intellectual foundations, planning theories, roles of planners in U.S. international settings. Scope, legitimacy, limitations of planning and of planning process. Issues in planning ethics and in planning in settings of diverse populations/stakeholders.

PA 5011. Organizational Analysis, Management, and Design. (3 cr; SP–Major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Survey course examines challenges facing higher-level managers in public and nonprofit organizations in a mixed economy and democratic republic. Uses lectures and case discussions to explore distinctive features of public and nonprofit management, skills necessary for effective management, and manager's role as a creator of public value.

PA 5012. The Politics of Public Affairs. (3 cr; SP–Major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Stages of policy making from agenda setting to implementation. Role and behavior of political institutions (courts, legislatures, executives, and bureaucracies) and citizens, social movements, and interest groups. Concepts of political philosophy. Theories of the state. Team taught interdisciplinary course with small discussion sections.

PA 5013. Law and Urban Land Use. (1.5 cr; SP–Major in publ aff or publ policy or sci, tech, and environ policy urban and regional planning or publ hth or # A-F only)

Role of law in regulating and shaping urban development, land use, environmental quality, and local and regional governmental services. Interface between public and private sector.

PA 5021. Economics for Policy Analysis and Planning. (1.5 cr; SP–Major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Introduction to a selection of tools useful for public policy: intermediate microeconomics, rudiments of macroeconomics, and central concepts of international trade.

PA 5022. Economics for Policy Analysis and Planning II. (3 cr; QP–5011 or equiv, major in publ aff or planning or sci and tech policy or publ hth or # SP–5021 or equiv, major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Application of economic reasoning to a variety of public policy issues that may vary by section. Includes cost-benefit analysis, nonmarket valuation, and tax analysis.

PA 5031. Empirical Analysis. (1.5 cr; SP–Major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Basic statistical tools for cost analysis of public policy alternatives. Frequency distributions, descriptive statistics, elementary probability and probability distributions, statistical inference, estimation and hypothesis testing, cross-tabulation and chi-square distribution, analysis of variance, correlation, simple and multiple regression analysis.

PA 5032. Intermediate Regression Analysis. (1.5 cr; QP–5021 or equiv, major in publ aff or planning or sci and tech policy or publ hth or # SP–5031 or equiv, major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Bivariate and multivariate models of regression analysis and assumptions behind them. Problems using these models when such assumptions are not met.

PA 5033. Multivariate Techniques. (1.5 cr; QP–5021 or equiv, major in publ aff or planning or sci and tech policy or publ hth or # SP–5031 or equiv, major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Examines public affairs topics using maximum likelihood estimation approaches.

PA 5034. Community Analysis and Planning Techniques. (1.5 cr; QP–5021 or equiv, major in publ aff or planning or sci and tech policy or publ hth or # SP–5031 or equiv, major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Data analysis techniques for practitioners in fields of planning, management, and policy analysis who work at community and regional levels. Population analysis and forecasting techniques relevant for small geographic areas. Impact of regional and local economic analysis, such as shift-share analysis, economic base, and location quotient analysis.

PA 5035. Survey Research and Data Collection. (1.5 cr; QP–5021 or equiv, major in publ aff or planning or sci and tech policy or publ hth or # SP–5031 or equiv, major in publ aff or publ policy or sci, tech, and environ policy or urban and regional planning or publ hth or # A-F only)

Introduction to survey research methods emphasizing applications to policy and applied research. Research design choices (e.g., descriptive, experimental, case studies), sampling, variable specification and measurement, conducting interviews, mailed questionnaires, qualitative techniques.

PA 5101. Management and Governance of Nonprofit Organizations. (1.5 cr; SP–Grad or #)

Draws on theories, concepts, and real world examples to explore critical managerial challenges. Governance systems, strategic management practices, effect of different funders, management of multiple constituencies. Different types of nonprofits using economic/behavioral approaches.

PA 5102. Organization Design and Change. (1.5 cr; SP–Grad or #)

Basic concepts related to organizational design decisions. Managerial challenges associated with organizational change in context of public sector agencies and nonprofit organizations. Major forces for change, kinds of change, management of change. Case-based analysis/discussion.

PA 5111. Financial Management in Public and Nonprofit Organizations. (3 cr; SP–5003, grad or #)


PA 5112. Public Budgeting. (4 cr; SP–Grad or #)


PA 5113. State and Local Public Finance. (3 cr; SP–Grad or #)

Theory/practice of finance. 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.

PA 5115. State and Local Public Services and Finance. (3 cr; QP–ApEc 3001 or equiv; SP–ApEc 3001 or equiv; A-F only)

Organization, delivery, economic analysis, and finance of state and local public services and functions.

PA 5121. Intergovernmental Relations. (3 cr; SP–Grad or #)

Theory/practice of intergovernmental relations in the United States. Historical, political, and economic roots of contemporary institutions. Intergovernmental dimensions of specific policy areas: education, economic development, metropolitan affairs, social welfare, and other areas of student interest.

PA 5122. Law and Public Affairs. (3 cr; SP–Grad or #)

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.

PA 5123. Development and Financial Strategies for Nonprofit and Public Organizations. (1.5 cr; SP–Grad or #)

Nonprofit/public sector financial/development strategies, political strategies used to obtain funding, philanthropy’s historical role in public affairs. Guest speakers.

PA 5131. Conflict Management: Readings in Theory and Practice. (3 cr; SP–Grad or #)

Current theory, resolution strategies. Aspects of interpersonal, group, organizational, and systemic conflict.

PA 5132. Mediation Training. (3 cr; SP–Grad student or #)

Creating an arena for mediation. Skills/expectations needed to mediate disputes between individuals, among groups: balance of power (power differentials). Role playing, group debriefing, critique. Cases.

PA 5133. Conflict Management Proseminar. (1 cr; SP–Grad student or #)

Topics in conflict management research/practice. Theoretical implications, practical applications from the perspectives of participants. National/international issues.

PA 5134. Conflict Management Proseminar. (1 cr; SP–Grad student or #)

Topics in conflict management. Theoretical implications, practical applications from the perspectives of participants. National/international issues.

PA 5190. Topics in Public and Nonprofit Leadership and Management. (1-3 cr [max 9 cr]; SP–Grad student or #; Selected topics)

PA 5201W. American Cities I: Population and Housing. (4 cr; SP–Grad or #)

Course Descriptions


PA 5203W. Geographical Perspectives on Planning. (4 cr; SP–Geog 3650, Geog 5650; grad student or #) Includes additional weekly seminar-style meeting and bibliography project on topic selected in consultation with instructor.

PA 5211. Introduction to Land Use Planning. (3 cr; PA 5211: Course in spatial analysis or work experience demonstrating knowledge of field; grad student) or #) Physical/analytical tools for regional development. Role of public sector in guiding private development processes. Issues in design of settlements. Applied case studies examine public regulatory frameworks.

PA 5212. Managing Urban Growth and Change. (3 cr; SP–Grad student or #) Theory/practice of planning, promoting, and controlling economic growth/change in urban areas. Economic 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.

PA 5221. Private Sector Development. (3 cr; SP–Grad student or #) Roles of various participants in land development. Investment objectives, effects of regulation. Overview of development process from private/public perspective.


PA 5241. Environmental Planning. (3 cr; SP–Grad student or #) Relationship between natural resources, ecology, and urban development; planning design principles in balancing these. Legal/ regulatory context of environmental planning. Methods of environmental impact analysis.

PA 5251. Strategic Planning and Management. (1.5 cr; SP–Grad student or #) Theory/practice of strategic planning/management for governments, public agencies, and nonprofit organizations. How to promote strategic thinking/acting by policy-making bodies and management teams. Determining what an organization should do, how it should do it, and why. Lectures, case discussions.

PA 5252. Strategy and Tactics in Project Planning and Management. (1.5 cr; SP–Grad student or #) Planning, analysis, evaluation, and implementation of short-term plans/projects. Technical analyses, interactional elements of completing projects within budget/time constraints. Strategic/tactical choices in planning. Case examples.

PA 5253. Participatory Management and Public Involvement Strategies. (3 cr; SP–Grad student or #) Survey of strategies, techniques, and tools for involving groups, members, organizations, and stakeholders (including public at large) in problem definition, policy/planning formulation, decision making, and implementation. Emphasizes public/nonprofit organizations, citizen involvement.

PA 5261. Housing Policy. (3 cr; SP–Grad student or #) Institute of 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.

PA 5290. Topics in Planning. (1-3 cr [max 9 cr]; SP–Grad student or #) Selected topics.

PA 5301. Population Methods and Issues for the United States and Third World. (3 cr; SP–Grad student or #) Basic demographic measures/methodology. Demographic transition, mortality, fertility. Diverse perspectives on non marital fertility, marriage, divorce, and cohabitation. Cultural differences in family structure, aging, migration, refugee movements, population policies. Discussion of readings on population growth and environment.

PA 5311. Program Evaluation. (3 cr; SP–Grad student or #) 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.

PA 5390. Topics in Advanced Policy Analysis Methods. (1-4 cr [max 9 cr]; SP–Grad student or #) Topics in advanced policy analysis methods.

PA 5401. Poverty, Inequality, and Public Policy. (3 cr; SP–Grad student or #) 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.

PA 5411. Child Welfare Policy. (3 cr; SP–Grad student or #) Intersection of conceptual orientations of developmental psychology with policies that affect children/families. Demographic, historical, social trends that underlie assumptions driving policies directed at women/children. Projections of future policies.

PA 5412. Aging and Disability Policy. (3 cr; SP–Grad student or #) Policy debates concerning populations that are aging or disabled. Students learn/practice analyses in context of important hearings, social, and economic policy debates. Readings on current theory/evidence.

PA 5421. Racial Inequality and Public Policy. (3 cr; SP–Grad student or #) 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.

PA 5431. Public Policies on Work and Pay. (3 cr; SP–[PA 5031 or equiv]; grad student) or #) Public policies in 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.

PA 5441. Education Policy and the State Legislature. (3 cr; SP–Grad student or #) 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.

PA 5442. Policy Design for Education and Human Development. (3 cr; SP–Grad student or #) Designing effective educational policies. Using interdisciplinary approaches to identify/understand core variables (economic, psychological, etc.) Work on policy design.

PA 5490. Topics in Social Policy. (1-3 cr [max 9 cr]; SP–Grad student or #) Selected topics.


PA 5502. Economic Development II. (2 cr; QP–[SP–5501 or equiv]; grad student or publ/hihst student or adult spec student) or #; SP–[SP–5501 or equiv]; grad student or #; A-F only) Economic development from macroeconomic/open economy perspective. Sources of economic growth. Agricultural development. Import-substitution industrialization. Endogenous growth models. Population, migration, and human development. Policy reform/adjustment.

PA 5511. Community Economic Development. (3 cr; SP–Grad student or #) 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.

PA 5521. Development Planning and Policy Analysis. (3 cr; QP–[SP–5021 or equiv]; SP–5502 or equiv); [grad student or publ/hihst student or adult spec student]) or #; SP–[SP–5031 or equiv]; [SP–5501 or equiv]; grad student) or #) Techniques/assumptions of development planning and policy analysis at national, regional, and project levels. Direct/indirect effects of external shocks and government interventions on national/regional economies. Macroeconomic modeling, input/output analysis, social accounting matrices/multipliers, project appraisal/evaluation techniques.

PA 5522. Economic Development Policies in Latin America. (3 cr; QP–[SP–5011, [SP–5502 or equiv]; grad student or publ/hihst student or adult spec student]) or #; SP–[SP–5021 or equiv]; [SP–5501 or equiv]; grad student) or #) Evolution of economic development policies from import-substituting industrialization policies of 1950s/1960s through beginning of reform in 1970s, economic crisis of 1980s, and reform into 1990s. Emphasizes privatization, economic integration, exchange rate/trade, and domestic/adjustment policies.

PA 5531. Strategies for Sustainable Development: Theory and Practice. (1.5 cr; SP–[Microecon course, grad student or #) Economic, environmental, and social aspects of sustainable development. Strategies, methods of implementation, and applications of sustainable development in different economic systems of industrialized/developing countries. Special attention to countries in transition.

PA 5590. Topics in Economic and Community Development. (1-3 cr [max 9 cr]; SP–Grad student or #) Selected topics.


PA 5611. Feminist Economics. (3 cr; QP–[SP–5010, [SP–5021 or equiv]; grad student or publ/hihst student or adult spec student]) or #; SP–5501, grad student) or #) Feminist philosophy, methodology, and economic practice. Feminist perspectives on development and the global economy, work/family. Heterodox traditions in economics.

PA 5690. Topics in Women and Public Policy. (1-3 cr [max 9 cr]; SP–Grad student or #) Selected topics.


PA 5711. Science and Technology Policy. (3 cr; SP–Grad student or #) Effects of science and technology on global economy, politics, environment, security. Role of national science/technology policies in development, diffusion, and adoption of
Public Health (PubH)

School of Public Health

PubH 3001. Personal and Community Health. (2 cr; SP-§3004, §GC 3114; SP-§3004) Fundamental principles of health conservation and disease prevention.

PubH 3003. Fundamentals of Alcohol and Drug Abuse. (2 cr; SP-§3004, §GC 3003) 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 Education. (4 cr; SP-§3001, §3003, §GC 3114; SP-§3001, §3003) 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 3091. Practicum in Peer Education I. (2 cr; QP-Upper div student with demonstrated hth sci or hth ed interest, 3001 or §3001 or 3004 or §3004, #; SP-Upper div student with demonstrated hth sci or hth ed interest, 3001 or §3001 or 3004 or §3004, #; A-F only) Multiple factors that influence health. Through various health promotion strategies, students build upon gain skills such as public speaking, needs assessments, program planning, interpersonal communication, and program evaluation.

PubH 3092. Practicum in Peer Education II. (2 cr; QP-Upper div student with demonstrated hth sci or hth ed interest, 3001 or §3001 or 3004 or §3004, #; SP-Upper div student with demonstrated hth sci or hth ed interest, 3001 or §3001 or 3004 or §3004, #; A-F only) Multiple factors that influence health. Through various health promotion strategies, students build upon gain skills such as public speaking, needs assessments, program planning, interpersonal communication, and program evaluation.

PubH 3099. Topics in Public Health. (1-15 cr; max 15 cr; QP-#; SP-#) Directed instruction, including selected readings.

PubH 3310. Epidemiology: Science, Methodology, and Application. (2 cr; QP-SP-#) Scientific work from perspective of epidemiology. Overview of scientific inquiry. Introduction to epidemiologic study design, and its problems.

PubH 5003. Fundamentals of Alcohol and Drug Abuse. (1.5 cr; QP-§5023; ed student or #; SP-§5023; ed student or #) Lecture, discussion, and special readings on scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems; emphasizes incidence, high-risk populations, prevention, and intervention.

PubH 5010. Public Health Interventions for AIDS. (3 cr; QP-Upper div or grad student or professional school student or #; SP-Upper div or grad student or professional school student or #; A-F only) Survey of HIV infection from public health perspective. Emphasizes intervention.

PubH 5017. Culture and Health Behavior. (2 cr; QP-Grad or professional school student or #; SP-Grad or professional school student or #) Heights cultural sensitivity regarding public health practice and individual health behaviors. Cultural diversity and its impact on health behaviors; etic (universal) and emic (culture-specific) approaches.

PubH 5030. Prevention of High-Risk Behavior Among Adolescents. (3 cr; QP-Intermediate Hubert H. Humphrey Fellows; SP-Intermediate Hubert H. Humphrey Fellows; S-N only) Meets specific needs of International Humphrey Fellows. Topics vary each year depending on the interests and needs of the fellows.


PubH 5903. Open Economy Models: an Assessment. (3 cr; SP-Intermeate macroeconomics, trade theory, grad student or #) Open economics, implications for policy making/implementation. Issues at level of international/domestic economies.

PubH 5990. Topics in Foreign Policy and International Affairs. (1-3 cr; max 9 cr; SP-Grad student or #) Selected topics.

PubH 6501. Computer Applications in Public Affairs. (0.5-3 cr [max 9 cr]; SP-Grad student or #) Introduction to computer systems/applications in public affairs practice.

PubH 6503. Introduction to Computers and Public Affairs. (2 cr; SP-Grad student or #) Introduction to computer systems/applications in public affairs practice.

PubH 6504. Introduction to Computer Systems and Applications at the Humphrey Institute. (2 cr; SP-Grad student or #; S-N only) Computers/applications. Basic skills. Software such as MS Word, Excel, Powerpoint, Access. Using Internet, e-mail, search engines (for research), HTML (through Web page creation software).

PubH 6531. Epidemiology: Science, Methodology, and Application. (2 cr; QP-SP-#) Scientific work from perspective of epidemiology. Overview of scientific inquiry. Introduction to epidemiologic study design, and its problems.

PubH 6550. Fundamentals of Alcohol and Drug Abuse. (3 cr; QP-§5023; ed student or #; SP-§5023; ed student or #) Lecture, discussion, and special readings on scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems; emphasizes incidence, high-risk populations, prevention, and intervention.

PubH 6560. Public Health Interventions for AIDS. (3 cr; QP-Upper div or grad student or professional school student or #; SP-Upper div or grad student or professional school student or #; A-F only) Survey of HIV infection from public health perspective. Emphasizes intervention.

PubH 6567. Culture and Health Behavior. (2 cr; QP-Grad or professional school student or #; SP-Grad or professional school student or #) Heights cultural sensitivity regarding public health practice and individual health behaviors. Cultural diversity and its impact on health behaviors; etic (universal) and emic (culture-specific) approaches.

PubH 6580. Prevention of High-Risk Behavior Among Adolescents. (3 cr; QP-Intermediate Hubert H. Humphrey Fellows; SP-Intermediate Hubert H. Humphrey Fellows; S-N only) Meets specific needs of International Humphrey Fellows. Topics vary each year depending on the interests and needs of the fellows.

PubH 6590. Topics in Public Health—General Topics. (1-3 cr; max 9 cr; SP-Grad student or #) General topics in public health.

PubH 7013. Exposure to Environmental Hazards. (2 cr; QP-Eh major or #; SP-Eh major or #; A-F only) Nature, effects, and regulation of exposure to biological, physical, and chemical hazards in the environment, including descriptions of current literature and multi-disciplinary scientific field of environmental health as an essential component of wider field of public health.
Course Descriptions

PubH 5336. Advanced Seminar in Infectious Disease Epidemiology. (1 cr; [max 2 cr]; QP–5330, 5335, #; SP–5330, 5340, 5345, MPH or Epi or MPH or Epi grad student; A-F only) In fection mechanisms, surveillance/epidemiologic transmission models, pathogenesis models.

PubH 5340. Epidemiology II. (4 cr; QP–5330, 1 biostats course or #; SP–5330, 1 biostats course or #) Measures of disease occurrence; strategies and design principles of etiologic and evaluative studies. Measurement of problems, interactions, sensitivity and precision, validity, and need for data specification and control of variables.

PubH 5345. Epi Methods: Data Collection. (2 cr; QP–5320, 5330, 5450, MPH major or #; SP–5330, 5450, [Epi MPH or clinical research student]) or #) Methods/techniques for collecting/managing epidemiologic research data. Practical aspects of sampling, research design, surveys, forms design, selecting/training interviewers. Data preparation, entry, cleaning, management. Ethnic issues in research.

PubH 5348. Writing Research Grants. (2 cr; QP–Epi grad student or postdoc student or #; SP–Epi grad student or postdoc student or clin res student or #; S–F only) Focuses on NIH-type grants. Mechanics of grant development/writing, principles of informed consent, budget development, grant-review process, identifying funding sources.

PubH 5351. Molecular Epidemiology. (2 cr; SP–PubH 5330, at least one college-level general biology course, [Epi MPH or Epi grad student] or #; A–F only) Introduction to molecular epidemiology. Sample collection, processing, methodology. Biomarkers used in cancer, cardiovascular disease, and infectious epidemiologic studies.

PubH 5356. Epidemiology of Aging. (2 cr; SP–Grad or professional school student, 5330 or equiv or #) Major concepts and issues. Emphasizes methodology that is unique to studies of older populations with measures of epidemiologic characteristics especially important, Scope of methodology compared to younger populations; most prevalent health conditions.

PubH 5370. Alcohol and Other Drugs: Epidemiology, Prevention, and Control. (3 cr; QP–Epi grad major or pub hth or biol or dent or nurs grad or med school or pharm student or #; SP–Epi grad major or pub hth or biol or dent or nurs grad or med school or pharm student or #) Population patterns regarding who uses which drugs, why they use them, and health consequences of alcohol and other drug use. Does not focus on treatments, care, rehab, or exploration of personal attitudes, practices regarding alcohol or other drug use.

PubH 5379. Epidemiology Master’s Project Seminar. (1 cr; QP–Epi major or #; SP–Epi major or #; S–N only) Students present their MPH master’s projects and give and receive feedback. Projects should be either underway or near completion.

PubH 5381. Genetic Epidemiology. (3 cr; QP–5330, 5450 or equiv, college coursework in genetics, hth sci grad or professional school student or #; SP–5330, 5450 or equiv, college coursework in genetics, hth sci grad or professional school student or #) Etiology, distribution, and control of diseases in groups of relatives; inherited causes of disease in populations. Associations (case-control family studies), concordance (twin studies), disease transmission (seggregation analysis), gene localization (gene mapping), and applications in studies of disease etiology.

PubH 5383. Pathobiology of Human Diseases. (3 cr; QP–Pub hth or biol or dent or eh or epi or nur or nurs or phmm or med student or #; SP–Pub hth or biol or dent or eh or epi or nur or nurs or phmm or med student or #) Basic cell biology and pathology of human diseases, including cardiovascular, cancer, neurodegenerative, immunologic processes. Disease conditions: current concepts of pathobiology, risk factors, and markers described for each disease.

PubH 5384. Human Physiology. (3 cr; QP–Epi major or pub hth nutr major or #; SP–Epi major or #) Basic human physiologic, chemical, and biologic principles. Emphasizes homeostasis as unifying concept. Cellular, organ, and organ systems function. Health applications, “clinical” problem solving. Physiologic information presented as background knowledge for critically assessing biologic research.

PubH 5386. Public Health Aspects of Cardiovascular Disease. (2 cr; QP–[5330, 5450] or equiv; SP–[5330, 5450] or equiv; students in 2-yr program take course in yr 2) Detailed perspective on well-established risk factors for CVD, prevention of CVD, and national recommendations for treatment/prevention. Introduces emerging risk factors and current controversies in CVD.

PubH 5387. Cancer Epidemiology. (2 cr; QP–5330, 5340, hth sci grad and professional school student or #; SP–5330, 5340, hth sci grad and professional school student) Cancer-related observational and experimental studies. Etiologic aspects of cancer, including theories of carcinogenesis, incidence, site-specific risk factors, and issues of cancer control and prevention.

PubH 5389. Nutritional Epidemiology. (2 cr; QP–5330, or #; SP–5330, or #) Study of nutrition/disease relationships through application of epidemiologic methods. Characterization of various exposures to food and nutrient intakes, biological basis for nutrition/disease relationships, description of specific chronic diseases and nutritional intake, design and interpretation of studies using nutritional measures.

PubH 5390. Smoking Intervention. (2 cr; QP–[Che or epi MPH] or epi grad student or #; SP–[Che or MCH or epi MPH] or epi grad student or #) Impact of smoking on U.S. public health. Review of research on onset/prevention. Factors maintaining dependence, cessation/intervention strategies. Public health campaigns. Public policies, second-hand smoking controversies. International issues.

PubH 5393. Design and Analysis of Group-Randomized Trials in Epidemiology. (3 cr; QP–5330, 5450, epi MPH or epi grad major, #; SP–5340, 5450, epi MPH or epi grad major) Community, school-based, and work site trials and trials involving randomization of other identifiable groups to study conditions. Experimental and quasi-experimental designs and tests to their validity.

PubH 5394. Mass Communication and Public Health. (2 cr; SP–[Pub hth or pub hth grad student or #; background coursework] in [social or behavioral] science recommended) Role, functions, effects of mass media on public health. Planned/unplanned effects. Review of literature on how theories, models, assumptions of mass communication research relate to public’s health.

PubH 5395. Obesity and Eating Disorders. (2 cr; QP–Grad or professional school student or #; SP–Grad or professional school student or #) Definition, measurement, and prevalence; social, behavioral, physiological causes; health consequences; treatment, prevention.

PubH 5398. Public Health Policy as a Prevention Strategy. (2 cr; QP–[Epi or che or pub hth nutr MPH or epi] grad student or #; SP–[Che or MCH or pub Nutr or Epi MPH or Epi grad student or #) Philosophical, ethical, economic, political, efficacy rationale for policy approach to prevention. Historical/current application of prevention policy to public health problems.


PubH 5420. Statistical Computing I: Using Statistical Packages. (1 cr; QP–5440 or #; 5450, hth sci grad student or #; SP–5440 or #; 5450, hth sci grad student or #) Use of the statistical computer package SAS for analysis of biomedical data. Data manipulation, description, and basic statistical analyses (t-tests, chi-square, simple regression).

PubH 5421. Statistical Computing II: Advanced Computational and Graphical Methods. (2 cr; QP–5445, C or FORTRAN or #; 5465, C or FORTRAN or #) UNIX-workstation-based computing and graphical methods for biostatistical analysis. Linear systems, numerical integration, optimization, Monte Carlo methods, design and analysis of simulation studies. Familiarity with a programming language (preferably C or FORTRAN) is assumed.

PubH 5450. Biostatistics I. (4 cr; QP–[Math 1111 or Math 1201], hth sci grad student or #; SP–[Math 1111 or Math 1201], hth sci grad student or #) Descriptive statistics. Gaussian probability models, point/interval estimation for means/proportions. Hypothesis testing, including t, chi-square, non-parametric tests. Regression/correlation. ANOVA. Health science applications using output from statistical packages.

PubH 5452. Biostatistics II. (4 cr; QP–5450, competence in SAS through 5450 or equiv or grade of at least B in 5414-5415; SP–5450, competence in SAS through 5450 or equiv or grade of at least B in 5414-5415) Multiple regression, analysis of counted data, including contingency table analysis, logistic regression. Survival analysis, including Cox proportional hazards regression model. Health science applications using SAS.

PubH 5456. Proseminar for the Biostatistician. (2 cr; SP–5446, biostats major or #; SP–5446, biostats major or #) Professional roles and responsibilities of the practicing biostatistician as consultant and collaborator in health sciences research.

PubH 5462. Clinical Trials: Design, Implementation, and Analysis. (3 cr; QP–5452 or 5466 or #; SP–5452 or 5466 or #) Introduction to and methodology of randomized clinical trials: design issues, sample size, operational details, interim monitoring, data analysis issues, and overviews.

PubH 5465. Biostatistical Inference I. (4 cr; QP–5450-5452, Stat 5101 or Stat 5101, biostats major or #; SP–5450-5452, Stat 5101 or Stat 5101, biostats major or #) Exploratory data analysis using SAS and S+, ANOVA, classical non-parametrics, multiple comparisons, power and sample size determinations, ANCOVA, simple linear regression, ANOVA as regression, robust regression.

PubH 5605. Reproductive and Perinatal Health. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #; FA only)
Issues, programs, services, and policies. Social, cultural, psychological, physiologic, environmental, economic, and political factors that affect reproductive health, pregnancy, and childbearing.

PubH 5606. Health of Children. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Overview of public health issues related to children in the United States. Focus on identifying and planning effective public health strategies, policies, and programs to improve the health of infants and children.

PubH 5607. Adolescent Health: Issues, Programs, and Policies. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Major public health issues of adolescents in the United States. Emphasis on prevention and health promotion strategies and on effectiveness of programs and policies.

PubH 5610. Principles of Maternal and Child Health. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
For MCH students and others interested in learning about the needs of children and families. Examines MCH activities in the context of “Healthy People 2000,” including the history and organization of programs, policies, and advocacy activities.

PubH 5613. Chronic Illness and Disability in Childhood: Principles, Programs, and Policies. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Principles, programs, and practices for identifying and meeting the needs of children and adolescents with chronic health conditions and of their families. Skills emphasized: needs assessment, program development/evaluation, family empowerment, interdisciplinary team building, integrated/COORDINATED service delivery, advocacy.

PubH 5627. Sexuality Education: Criteria, Curricula, and Controversy. (1 cr; SP–MCH or PHA major or #)

PubH 5628. Seminar: Race, Class, and Family Formation. (2 cr; SP–Public health student or grad student or #; S-N only)
Impact of race/class on family formation, family dynamics, and family resiliency/maintenance. Explores whether traditional approaches in family intervention are effective among individuals who are not engaged in traditional social institutions.

PubH 5630. Research Methods in the Health Assessment of Women and Children. (2 cr; QP–Pub hlt or grad student, 5330 or 5330 or #; SP–Pub hlt or grad student or #)
Elements essential for evaluating and conducting research on health of women and children, including hypothesis generation, development of study design, variable operationalization, measurement, selection of analytic models, and dissemination of results.

PubH 5631. Program Evaluation in Maternal and Child Health. (2 cr; QP–SP5822,5263 or 5806 or #; SP–Pub hlt or grad student or #; SP–Research course, mch or pha major or #; FA only)
Introduction to models and applications of program evaluation in public health; design strategies and methods for determining and analyzing evaluative information; and consideration of social context and ethical and political forces that shape evaluation design, implication, and utilization.

PubH 5633. Qualitative Research Methods. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Overview of qualitative methods used in research and evaluation; emphasis on public health issues of children, youth, families, and communities.

Understanding the application of qualitative methods and developing data analysis skills.

PubH 5634. Advocating for Change for Children. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #; SP–Grad or professional school student or professional in hlt-related discipline preferred; SP–Grad or professional school student or professional in hlt-related discipline preferred)
Strategies for changing systems, building skills in public policy research, information/perception management, coalition building, personal persuasion, advocacy.

PubH 5639. Prevention: Theory, Practice, and Application in Public Health Service. (3 cr; QP–Grad or professional school student or professional in hlt-related discipline preferred; SP–Grad or professional school student or professional in hlt-related discipline preferred)
Current issues and controversies around prevention and how it relates to health services. History, prevention as an idea, terminology, lifestyle intervention, programs and legislative issues, education, roles and implications for societal action.

PubH 5640. Public Health and Medical Care Organization. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Structure and operation of public health and medical care systems in the United States; determinants of community health and characteristics of successful interventions, particularly with high risk children, youth, and families.

PubH 5645. Families and Health: An Ecosystems Approach. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Interrelationships between individual, family, and community health. Family theories and research and the impact of the sociocultural context, public policies, and community structures on health. Primary and secondary prevention strategies for promoting family health.

PubH 5650. Teenage Pregnancy and Parenting: Models for Intervention. (1 cr)
Understanding adolescent pregnancy, parenting, and sexual decision making from developmental and public health perspectives. Critical examination of best prevention programs and policies for individual counseling, school-based interventions, youth-serving community organizations, and government.

PubH 5661. Community Organization for Public Health. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #)
Introduces students to principles of community organizing and identifies challenges and strategies for public health professionals engaged in community organizing. Decreasing barriers to community participation; encouraging leadership; building coalitions and alliances; sustaining community organizing efforts.

PubH 5663. Cross-Cultural Health Issues. (2 cr; QP–Pub hlt or grad student or #; SP–Pub hlt or grad student or #; SP–Grad or professional school student or professional in hlt-related discipline preferred; SP–Grad or professional school student or professional in hlt-related discipline preferred)
Health issues and “health culture” of ethnic communities in Minnesota, including Hmong, Hispanic, African American, and Native American. Cultural factors that influence health and health services.

PubH 5693. Grant Writing for Public Health. (1 cr; QP–Mch or pha major or #; SP–Mch or che or pubh nutr or epi major or #)
Hands-on workshop. Focuses on children, youth, and families. Identifying successful elements of a grant application. Grant review process. Critiquing a grant. Writing an application.

PubH 5700. Foundations of Public Health Administration Practice. (2 cr; QP–Pha major or #; SP–PHA major or #)
Planning, organization, and administration of public health agencies at the state level; how these agencies function in relation to public health at federal and local levels. Interaction with practicing public health administrators and specialists.

PubH 5701. Public Health Administration. (2 cr; QP–Pha major or #; SP–Pha major or #)
Issues, administrative problems, activities, structure, organization, supervision, and direction of state, local, federal, and nonprofit public health agencies.

PubH 5702. Policy Issues in Public Health Administration. (2 cr; QP–Pha major or #; SP–Pha major or #)
Policy development and implementation in public health-related agencies and organizations.

PubH 5705. Community Health Assessment. (2 cr; QP–Grad or professional school student or #; SP–Grad or professional school student, 5310 or 5410 or equiv or #)
Increases knowledge, understanding, and skills in two of the three core functions of public health: health assessment and assurance. Lectures, group activities, and individual presentations.

PubH 5711. Public Health Law. (2 cr; QP–Pub hlt student or #; SP–Pub hlt student or #)
Basic concepts of the law, legislative process, legal bases for the existence and administration of public health programs, legal aspects of current public health issues and controversies, and regulatory role of government in the health services system.

PubH 5720. Management Communication. (2 cr; QP–Pha major; SP–Pha major)
Role of communication in health services administration. Emphasis on development of skills in presentational speaking, interviewing, and written communications. Case study analysis of communication problems in public health organizations.

PubH 5729. Seminar on Medical Ethics. (2 cr; SP–4xxx or 5xxx ethics course and #)
Patients’ rights/duties, informed consent, confidentiality, ethical issues in medical research, initiation/termination of medical treatment, euthanasia, abortion, maternal/fetal conflicts, allocation of medical resources.

PubH 5731. Public Health Program Planning and Grant Writing. (3 cr; QP–Pha or mch major or #; SP–Pha or mch major or #)
Provides knowledge and skills necessary for planning health promotion and disease prevention programs and writing grants to fund these programs. Uses PR/ED/PROCED Model as a framework for program planning.

PubH 5733. Interventions for Health of Populations. (3 cr; QP–SP5330 or #; SP–SP5–SP5–S601,5330 or #)
Synthesis of life cycle developmental approach and public health perspective with nursing and behavior change conceptual models to develop intervention models that are effective in addressing priority public health problems across the life span.
Course Descriptions

PubH 5375. Public Ethics/Politics and Public Health. (2 cr; QP–Pub hth or grad student or #) SP–Pub hth or grad student or #. Systematic examination of ethical/value aspects related to decision making in public health interventions. Responsibilities of the state in relation to health, politics as public ethics, and distributive justice as a pluralistic society.

PubH 5400. Organizational Behavior. (2 cr; QP–Pub hth or grad student or #). SP–Pub hth or grad student or #. Human behavior in organizations; motivation, leadership, influence of organizational structure, informal group behavior, interpersonal relations, supervision. Preventing and solving problems among individuals and groups in organizations.

PubH 5402. Ethics in Public Health: Practice, Policy, and Research. (2 cr; SP–Public health or grad student or #). Basic skills of ethical analysis. Recognizing, researching, analyzing issues arising in public health and in public health research.

PubH 5403. Ethics in Health Care Administration. (2 cr; QP–Pub hth or grad student or #). SP–Pub hth or grad student or #. Ethical perspectives in managing health-care organizations, components of decision-making framework, applying framework to selected ethical issues, institutional mechanisms for dealing with ethical problems.

PubH 5571. Principles of Management in Health-Services Organizations. (2 cr; QP–Grad or professional school student; SP–Grad or professional school student) Lectures, case studies on the role of health-care services administrators, principles of management and their relationships to the administrative process.

PubH 5579. Health-Care Financial Management (Private Sector Emphasis). (3 cr; QP–5756, 5757, pha major or MHA student or #; knowledge of computerized spreadsheets; SP–5756, 5757, pha major or MHA student or # or SP–3-cr college-level accounting course or # knowledge of computerized spreadsheets.) Basic principles of finance and selected insurance concepts integrated and applied to health care with private sector emphasis. NPV; CAPM; capital and operating budgets; Medicare PPS and RBRVS; risk-adjusted capitation; health-care reform.

PubH 5771. Health-Care Financial Management (Public Sector Emphasis). (3 cr; QP–3-cr college-level accounting course or # knowledge of computerized spreadsheets recommended; SP–2-cr college-level accounting course or # knowledge of computerized spreadsheets recommended.) Basic principles of finance and selected insurance concepts integrated and applied to health care with public sector emphasis. NPV; public financing; capital and operating budgets; Medicare PPS and RBRVS; risk-adjusted capitation; health-care reform.

PubH 5790. Sociology of Medicine and Health Care: An Introduction to Medical Sociology. (3 cr; QP–5555, 5555; SP–5555) Social and psychological components of health and medical care. Organization and delivery of health-care services, their problems and perspectives; focus on patient, care provider, and environment within which health-care services are dispensed.

PubH 5801. Principles of Research and Program Evaluation. (4 cr; QP–Pub hth or grad student or #; SP–Pub hth or grad student or #). Introduction to research in public health, including formulation of research question, methodological design, sampling designs, data collection techniques, instrument validity and reliability, role of statistical analysis, and ethics.

PubH 5806. Principles of Public Health Research. (2 cr; QP–Pub hth or grad or professional school student or #; SP–Pub hth or grad or professional school student or #). Evaluation of public health research literature and planning for independent research projects. Formulation of research question, research design, sampling techniques, use of research concepts, and data analysis. Data collection techniques, including questionnaires, interviews, and data analysis.

PubH 5812. Managed Care. (3 cr; QP–Pub hth or hrs & pub maj or MHA student or #; SP–Pub hth or hrs & pub maj or MHA student or #). Development and organization of HMOs; risk sharing; provider contracts; utilization management; quality improvement; marketing and new product development; employer relations; Medicare and Medicaid contract negotiation; financial performance; pricing; regulation.

PubH 5852. Program Evaluation in Health and Mental Health Settings. (3 cr; QP–SP–#). Overview of evaluation, models of evaluation, objectives of an evaluative study, sampling of subjects, methods of data collection, methodological designs, interpretation of data, preparation of final report, and ethical and political considerations.

PubH 5861. Health Insurance. (2 cr; QP–Micro-econ theory course or #; Micro-econ theory course or #; A-F only). Financing personal health care: theory of insurance, health insurance markets, cost sharing, HMOs, PPOs, public and catastrophic health insurance, and the uninsured. Emphasis on public policy.


PubH 5864. Conducting Health Outcomes Research. (3 cr; SP–Intro crse in [epidemiology or health services research required]). Major concepts/principles in conducting health outcomes research that evaluates medical care. Developing study designs matched to research questions. Frequently used study designs. Evaluating health outcomes. Analytical approaches.

PubH 5870. Survey Research and Sample Design in Health-Services Research. (2 cr; A-F only) General, technical, and theoretical context of survey research in health-services research. Survey and sample design issues, with extensive use of case examples.

PubH 5871. Managing Health Information. (3 cr; SP–Grad student or public health student or #; Sources/typology research, their quality. Relational database methods for organizing/using information. SAS/SQl skills necessary to manage information data).

PubH 5893. Economics of the Health-Care System. (3 cr; QP–Micro-econ theory course or #; Micro-econ theory course or A-F only). Economic analysis of U.S. health-care sector, emphasizing problems of pricing, production, and distribution. Health-care services as a one factor contracting with consumer’s health.

PubH 5894. Health-Services Policy. (2 cr; QP–Pub hth or hrs & pub maj or MHA or pub aff student or #; SP–Pub hth or hrs & pub maj or MHA or pub aff student or #). Social, political, and economic context within which U.S. health-care system developed; influence of these contextual elements on public policies guiding and regulating organization and delivery of health services.

PubH 5900. Public Health Nutrition: Principles and Programs. (2 cr; QP–Pub hth nutr major or #; SP–Pub hth nutr major or #). Principles of public health nutrition, roles and functions of public health nutritionists, programs and delivery mechanisms for promoting nutritional status of populations. Students explore their beliefs and competencies in relation to principles and philosophy of public health nutrition.

PubH 5902. Maternal and Infant Nutrition. (2 cr; QP–3-xxx nutrition course or equiv or #; SP–3-xxx nutrition course or equiv or #). Nutritional needs of childbearing women and of infants. How to meet these needs through programs/services.

PubH 5905. Human Nutrition and Health. (2 cr; QP– jr or sr or grad or professional school student; SP–jr or sr or grad or professional school student) Broad range of nutrition topics of contemporary interest. Concepts and facts about science of human nutrition in relation to personal and community nutrition problems and concerns. Applied, introductory graduate-level course with labs.

PubH 5906. Field Experience: Public Health Nutrition. (1-8 cr; max 10 cr; QP–Pub hth nutr major; SP–Pub hth nutr major; S-N only) Placement in an approved agency with opportunity for evaluation of nutrition-related activities of public health programs.

PubH 5907. Assessment of Dietary Intake. (1 cr; QP–Pub hth nutr major or #; SP–Pub hth nutr major or #). Methods for assessing dietary intake of populations and individuals; appropriate uses of dietary assessment methods in public health, clinical, and research settings; evaluation and interpretation of dietary data.

PubH 5908. Anthropometric Assessment of Nutritional Status. (1 cr; QP–5450 or 5414 or equiv, grad or professional school student; SP–5450 or 5414 or equiv, grad or professional school student) Anthropometry as used to assess nutritional status; training and experience in taking basic measurements; practical experience in anthropometry; conceptual rationalizations and interpretations of anthropometric data.

PubH 5910. Critical Review of Research in Public Health Nutrition. (1 cr; QP–Pub hth nutr or mch major, grad-level course each in research, biostats, epi or #; SP–Pub hth nutr or mch major, grad-level course each in research, biostats, epi or #). Applying principles of nutrition, epidemiology, and biostatistics to evaluate scientific research on topics of significance in public health nutrition. Interactive seminar format with lecture, discussion, and student presentations.

PubH 5911. Biochemical Assessment. (1 cr; QP–Grad or professional school student; 5450 or 5414 or equiv or #; SP–Grad or professional school student, 5450 or 5414 or equiv or #). Use of biochemical measurements for evaluation of nutritional status. Biochemical measurement methods, data analysis, and application of reference data; protein, vitamin, and mineral status.

PubH 5914. Community Nutrition Intervention. (3 cr; QP–Grad or professional school student or #; SP–Grad or professional school student) Nutrition intervention strategies used in health programs. Selecting appropriate strategies, applying them to specific target audiences, and evaluating their usefulness in relation to program objectives.

PubH 5920. Public Health Aspects of Nutrition Policy. (2 cr; QP–Pub hth nutr or epi or MHR or epi or nutr grad major or #; SP–Pub hth nutr or epi or MHR or epi or nutr grad major or #). Nutrition policy formulation and effects on public health. Role of policy approaches in context of nutrition; how these approaches differ from other prevention strategies.

PubH 5932. Nutrition: Adults and the Elderly. (2 cr; QP–Grad or professional school student or #; SP–Grad or professional school student or #). Current literature and research on nutrition needs and factors affecting nutritional status of adults and the elderly.

PubH 5933. Nutrition: Health/Disease Relationships. (2 cr; QP–5330, FSCN 5622 or MeBc 5201 or equiv or #; SP–5330, FSCN 5622 or MeBc 5201 or equiv or #). Issues in nutrition and public health; biological and epidemiologic bases for public health dietary recommendations. Relation of nutrition to heart disease, cancer, hypertension, obesity, and other conditions.
Recreation, Park, and Leisure Studies (Rec)

School of Kinesiology and Leisure Studies
College of Education and Human Development

Rec 1501. Orientation to Leisure and Recreation. (3 cr)
Introduction to the history and development of the parks and recreation movement; sociological, economical, psychological, and political considerations of leisure and recreation in contemporary society; interrelationship between professional and service organizations; orientation to the professional field.

Rec 2151. Outdoor and Camp Leadership. (3 cr; A-F only)
Practical and theoretical study of leading groups in outdoor and camp settings. Outdoor leadership skills, expedition planning, emergency procedures and risk management, minimum impact approaches, and working with youth in a camp environment.

Rec 3281. Research and Evaluation in Recreation, Park, and Leisure Studies. (4 cr; QP–1520 or #; SP–1501 or A-F only)
Basic techniques; emphasis on social research and evaluation methodology; survey of present status of recreation and park research and evaluation.

Rec 3541W. Recreation Programming. (3 cr; QP–1520 or #; rec major; SP–1501 or #; rec major; A-F only)
Various methods, skills, materials needed for planning, developing, implementing, evaluating professional recreation programs for diverse populations in various settings.

Rec 3551. Administration and Finance of Leisure Services. (4 cr; QP–3530, 3546 or #; rec major; SP–3541 or #; rec major; A-F only)
Principles and practices of financing and managing leisure service agencies in the public and private sector.

Rec 3601. Leisure and Human Development. (3 cr)
Exploration of relevant issues concerning many roles of leisure in human development from influence on healthy fetal development to viability until death. Examination of diverse, multicultural perspectives on leisure, its historical development, and leisure and development of individuals.

Rec 3796. Senior Internship in Recreation, Park, and Leisure Studies. (1-12 cr [max 12 cr]; QP–Rec sr or #; SP–Rec sr or #; SP–5 N 5 only)
Supervised field experience for pre-professional students in selected agencies.

Rec 3993. Directed Study in Recreation, Park, and Leisure Studies. (1-9 cr [max 24 cr]; QP–Rec sr or #; SP–Rec sr or #; SP–5 N 5 only)
Independent study of leisure service programs, policies, and settings in the field of leisure studies and services. Not intended for additional fieldwork, internship, or programming experience.

Rec 5101. Foundations of Recreation. (3 cr; QP–Med or grad student or #; SP–Med or grad student or #; A-F only)
Investigation of the rational, sociological, psychological, and philosophical foundations of the recreational leisure of human societies. Includes a survey of leisure services.

Rec 5111. Sports Facilities. (3 cr; QP–#Kin 5111; Kin or rec major or #; SP–#Kin 5111; Kin or rec major or #; A-F only)
Steps in planning and building facilities for athletics, physical education, and sport for college, professional, and public use.

Rec 5161. Recreation Land Policy. (3 cr; QP–1500 or 5100 or #; SP–1501 or 5101 or #; A-F only)
Historical development of recreational land policy in the United States and related contemporary issues in policy, management, interpretation, and research.

Rec 5191. Commercial Recreation and Tourism. (3 cr; QP–3550 or #; SP–3551 or A-F only)
Scope and development of profit-oriented recreation agencies, including an emphasis on the tourism industry.

Rec 5211. Introduction to Therapeutic Recreation. (3 cr; QP–1520 or #1500, rec major or #; SP–1501 or #1501, rec major or #; A-F only)
Provided services, roles of specialist/recruitment therapists in meeting cognitive, physical, emotional, social needs of people with disabilities through recreation services; roles of specialist/recreation therapists changing societal attitudes toward illness and disability and the self-concepts of individuals with impairments.

Rec 5221. Comprehensive Therapeutic Recreation Services Development and Management. (4 cr; QP–5210 or Rec major; SP–5211 or #; rec major)
Guided development of written plans including development of protocols and critical pathways, intervention programs/activities, individual treatment plans and standards for appropriate placement of individuals with disabilities; approaches to programming, including behavioral methods, in home, school, and community settings.

Rec 5241. Functional Intervention/Recreation Therapy in Geriatric Care. (3 cr; SP–3541 or 5111 or #; A-F only)
Role of leisure in maintenance of mental, physical, social-emotional health/functioning. Issues relative to prevention of impairment/disability. Rehabilitation/support of vital life involvement, effect on design/ delivery of recreation services.

Rec 5271. Community Leisure Services for Persons With Disabilities. (3 cr; QP–1520, rec major, or #; SP–1501, rec major, or #; A-F only)
Exploration and instruction of concepts and techniques of normalization and least restrictive environment strategies to leisure service delivery in inclusive community settings for a range of individuals with disabilities.

Rec 5288. Grant Writing in Human Services. (3 cr; A-F only)
Identify, develop, and procure financial assistance for programs in human services, including education, recreation, and social programs. Skills and strategies for preparing and evaluating competitive proposals for grant support through federal agencies and private foundations or corporations.

Rec 5301. Wilderness and Adventure Education. (4 cr; QP–3130, A-F only)
Rationale for methods in applying wilderness/ adventure education programs in education, recreation, corporate, human service settings. Emphasizes adventure/wilderness program management.

Rec 5311. Programming Outdoor and Environmental Education. (3 cr; A-F only)
Methods, materials, and settings for developing and conducting environmental and outdoor education programs.

Rec 5461. Foundations of Sport Management. (3 cr; QP–§Kin 5460; Kin or rec major or #; SP–§Kin 5461; Kin or rec major or #; A-F only)
Theories/techniques in administering/managing sport enterprises. Organizational theory/policy. Practical examples of sport management skills/strategies.

Rec 5511. Women in Sport and Leisure. (3 cr; QP–#Kin 5511; Kin or rec major or #; SP–#Kin 5511; Kin or rec major or #; A-F only)
Critical examination of women’s involvement in contributions to sport, physical activity, and leisure.

Rec 5801. Legal Aspects of Sport and Recreation. (4 cr; QP–3550 or #; SP–Kin 5801; 3551 or 5461 or #; A-F only)
Legal issues related to recreation, park, and sport programs/facilities with public/private sectors.

Rec 5900. Special Topics: Contemporary Issues in Leisure Services. (1-12 cr [max 12 cr])
Contemporary issues emphasizing administrative and supervisory functions for recreation and allied professionals; individual offerings, to be determined by faculty, focus on special issues and professional groups.

Rec 5981. Research Methodology in Kinesiology and Leisure Studies. (3 cr; QP–§Kin 5980; Med or grad student or #; SP–§Kin 5981; Med or grad student or #; A-F only)
Defines and reviews various types of research in exercise and sport science, physical education, and recreation studies. Covers qualitative research, field studies, and methods of introspection as alternate research strategies instead of relying on traditional scientific paradigm.

Rec 5992. Readings: Recreation. (1-3 cr [max 9 cr])
Independent study under tutorial guidance by a faculty member in leisure studies. Intended as an opportunity to conduct in-depth study and reading on particular topics not covered in group classes.

Rec 5995. Problems in Recreation, Park, and Leisure Studies. (1-12 cr [max 30 cr]; QP–Med or grad student or #; SP–Med or grad student or #)
Independent study of leisure service programs, systems, facilities, or policies; focus on conduct of recreation programs. Intended for scholarly projects (e.g., library or field research) or demonstration projects in the field of leisure studies and services. Not intended for additional fieldwork, practicum, or programming experience.

Religions In Antiquity (RelA)

Department of Classical and Near Eastern Studies
College of Liberal Arts

RelA 1001. Introduction to the Religions of the World. (3 cr)
An introduction to the major religions of the world and the academic study of religion. Hinduism, Buddhism, Judaism, Christianity, Islam, and some pre-Christian religions of Antiquity.

RelA 1011. Introduction to the Religions of South Asia. (3 cr)
Historical study of the three traditional religions of India: Hinduism, Buddhism, and Jainism through literature, art, and film. General topics include myth, yoga, mysticism, and the religious order of society.

RelA 1034. Introduction to Judaism. (3 cr; SP–§3034, §1500 or §1503; §1504; no knowledge of Hebrew required)
Survey of intellectual history, literature, beliefs, practices, values, laws, national, and cultural developments from the rabbinic period through today. Ancient and modern sources used to study Judaism. Combines Western critical methodologies with the Jewish traditions of learning.

RelA 1035. Introduction to Christianity. (3 cr; A-F only)

RelA 1082. Jesus in History. (3 cr; SP–11182)
Jesus of Nazareth in his original setting. Modern approaches to the historical Jesus. Perspectives and needs of early gospel writers and effects of portrayals of Jesus. Shifting representations of Jesus in new historical and cultural situations. Meets with RelA 1182.
Course Descriptions

RelA 1182. Honors Course: Jesus in History. (3 cr; SP–§1082)
Jesus of Nazareth in his original setting. Modern approaches to the historical Jesus. Perspectives and needs of early gospel writers and effects of portrayals of Jesus. Shifting representations of Jesus in new historical and cultural situations. Meets with RelA 1082.

RelA 3013W. Biblical Law and Jewish Ethics. (3 cr; SP–§5013, §wst 3013, §wst 5013)

RelA 3044. Introduction to Judaism. (3 cr; SP–§3044, §wst 3044) No knowledge of Hebrew required
Survey of intellectual history, literature, beliefs, practices, values, laws, national, and cultural developments from the rabbinc period through today. America's role in the study of Judaism. Combines Western critical methodologies with the Jewish traditions of learning.

RelA 3035. Introduction to Christianity. (3 cr; SP–§1035; A-F only)
Christian traditions throughout history. Emphasizes recent developments in the cultural and religious contexts of church/society, varieties of spiritual formation, elusive pursuit of Christian unity.

RelA 3036. Islam: Religion and Culture. (3 cr)
Religion of Islam, faith, practices, sectarian splintering, expansion outside original home to status of world religion, institutions, status in world societies—Asia, Europe, Americas.

RelA 3070. Topics in Ancient Religion. (3 cr)
Study of a specific aspect of religion in antiquity, such as healing cults, magic and divination, Gnosticism, or prophecy and authority. Topics vary by instructor and from year to year. Topics specified in Class Schedule.

RelA 3071. Greek and Hellenistic Religions. (3 cr; SP–§3171)
Greek religion from the Bronze Age to Hellenistic times. Sources include literature, art, archaeology. Homer and Olympian deities; ritual performance; prayer and sacrifice; temple architecture; death and the afterlife; mystery cults; philosophical religion; Near Eastern salvation religions. Meets with 3071.

RelA 3072. The New Testament. (3 cr; §wst 3072)
Early Christian literature in its cultural and historical setting; origins in Judaism; traditions about Jesus; Paul, his controversies and interpreters; questions of authority, religious practice, structure; emergence of the canon of scripture. Contemporary methods of New Testament study.

RelA 3072H. Honors Course: The New Testament. (4 cr; SP–§3072, §3172, §Clas 3172, §Clas 3072; honors)

RelA 3073. Roman Religion and Early Christianity. (3 cr)
Early Roman religion and its cultural and historical setting: origins in Judaism; traditions about Jesus; Paul, his controversies and interpreters; questions of authority, religious practice, structure; emergence of canon. Contemporary methods of New Testament study.

RelA 3088. Archaeology in Biblical Lands I: Old Testament. (3 cr)

RelA 3089. Archaeology in Biblical Lands II: New Testament Period. (3 cr)

RelA 3115. Mishnah and Midrash in Translation. (3 cr) Jewish law studied as a mirror of society and as a way to actualize its value. Consideration of original socioreligious contexts and current applications. Selections include biblical interpretations. Rabbinic responses to feminism and the democratic ideal.

RelA 3171. Honors Course: Greek Religion. (4 cr; SP–§3071)
Greek religion from the Bronze Age to Hellenistic times. Sources include literature, art, archaeology. Homer and Olympian deities; ritual performance; prayer and sacrifice; temple architecture; death and the afterlife; mystery cults; philosophical religion; Near Eastern salvation religions. Meets with 3071.

RelA 3173. Honors Course: Roman Religion and Early Christianity. (4 cr)

RelA 3174. The Bible: Narrative Texts. (3 cr; SP–§3074)
Survey of biblical writings as history and narrative. Meets with RelA 3074.

RelA 3180. Archaeology in Biblical Lands I: Old Testament Period. (3 cr)

RelA 3191. Archaeology in Biblical Lands II: New Testament Period. (3 cr)

RelA 3192. Ancient Israel: From Conquest to Exile. (3 cr; SP–§3092)
Israelite history in context of what is known from Egyptian, Canaanite, and Mesopotamian sources. Focus on issues raised by archaeological data related to Israelite conquest of Canaan.

RelA 3503. History and Development of Israelite Religion I. (3 cr; SP–§5503; No knowledge of Hebrew required)

RelA 3504. Development of Israelite Religion II. (3 cr)
Ancient Judaism from the Persian restoration (520 BCE) to Roman times (second century CE). Religious, cultural, and historical developments are examined to understand Jewish life, work, and worship under a succession of foreign empires: Persian, Greek, and Roman.

RelA 3993. Directed Studies. (2-4 cr; max 10 cr; SP–A)
Student works with faculty on a subject decided upon by both.

RelA 5013. Biblical Law and Jewish Ethics. (3 cr; SP–§5013, §wst 5013, §wst 5013)

RelA 5070. Topics in Ancient Religion. (3 cr; SP–RelA 3071 or 3072 or 3072H or 3073 or 5070 or 5072 or #)
Study of a specific aspect of religion in Classical and Near Eastern antiquity such as healing cults, magic and divination, Gnosticism, or prophecy and authority. Topics specified in Class Schedule.

RelA 5071. Greek and Hellenistic Religions. (3 cr; SP–§3071)
Greek religion from the Bronze Age to Hellenistic times. Sources include literature, art, and archaeology. Homer and the Olympian deities; ritual performance; prayer and sacrifice; temple architecture; oracles; death and the afterlife; mystery cults; philosophical religion; Near Eastern salvation religions. Meets with 3071.

RelA 5072. The New Testament. (3 cr; SP–§3072, §3172)

RelA 5073. Roman Religion and Early Christianity. (3 cr; SP–§3073)

RelA 5088. Archaeology in Biblical Lands I: Old Testament Period. (3 cr; SP–§5088)

RelA 5089. Archaeology in Biblical Lands II: New Testament Period. (3 cr; SP–§5089)
Archaeological data relevant to Jewish scriptures and New Testament; major sites in the Holy Land and sites of the Mediterranean and Near East.

ReIA 3503. History and Development of Israelite Religion I. (3 cr; SP-ReIA 3503) Survey of the evolution of Israelite religion. Cultic practices, law and religion, prophecy, religion and historiography. Relationship to surrounding religious systems.

ReIA 3504. Development of Israelite Religion II. (3 cr) 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.

ReIA 3993. Directed Studies. (2-4 cr [max 10 cr]) Guided individual research or study.

Religious Studies (RelS)

Department of Classical and Near Eastern Studies

College of Liberal Arts


RelS 3111. Problems in Historiography and Representation of the Holocaust. (3 cr; SP–JwSt 3521/ RelS 3521 formerly 3541) History of the Holocaust or # An advanced course focusing on issues connected with the Holocaust. Inclusiveness of other groups, Holocaust versus “Shoah,” historiographical conflicts about perpetrators, an examination of the problems of representation in literature and art, problems of narrative theology after Auschwitz.

RelS 3993. Directed Studies. (1-4 cr [max 24 cr]) Directed studies in religion. Credits may vary from term to term at a limit of nine.

Residential College (RCol)

College of Liberal Arts

RCol 1901. Residential College Seminar for First Year Students. (1-3 cr [max 6 cr]; A-F only) Environmental topic seminars listed in Residential College brochure.

RCol 1902. Residential College Seminar for First Year Students. (1-3 cr [max 6 cr]; A-F only) Cultural diversity topic seminars listed in Residential College brochure.

RCol 1903. Residential College Seminar for First Year Students. (1-3 cr [max 6 cr]; A-F only) Citizenship and public ethics topic seminars listed in the Residential College.

RCol 1904. Residential College Seminar for First Year Students. (1-3 cr [max 6 cr]; A-F only) International perspectives topic seminars listed in Residential College brochure.

RCol 1905. Residential College Seminar for First Year Students. (1-3 cr [max 6 cr]; A-F only) Topics listed in Residential College brochure.

RCol 1906W. First Year Seminar for Freshmen and Transfer Students. (1-3 cr [max 6 cr]; SP–Residential College student; A-F only) Environmental and writing intensive topics listed in Residential College brochure and in Class Schedule.

RCol 1907W. First Year Seminar for Freshmen and Transfer Students. (1-3 cr [max 6 cr]; SP–Residential College student; A-F only) Cultural diversity and writing intensive topics listed in Residential College brochure and in Class Schedule.

RCol 1908W. First Year Seminar for Freshmen and Transfer Students. (1-3 cr [max 6 cr]; SP–Residential College student; A-F only) Citizenship/public ethics and writing intensive topics listed in Residential College brochure and in Class Schedule.

RCol 1909W. First Year Seminar for Freshmen and Transfer Students. (1-3 cr [max 6 cr]; SP–Residential College student; A-F only) International perspectives and writing intensive topics listed in Residential College brochure and in Class Schedule.

RCol 1910W. First Year Seminar for Freshmen and Transfer Students. (1-3 cr [max 6 cr]; SP–Residential College student; A-F only) Writing intensive topics listed in Residential College brochure and Class Schedule.

RCol 3905. Residential College Seminar for Continuing and Upper Division Students. (1-3 cr [max 18 cr]; A-F only) Topics listed in Residential College brochure

Rhetoric (Rhet)

Department of Rhetoric

College of Agricultural, Food, and Environmental Sciences

Rhet 1001. Introduction to Scientific and Technical Communication. (3 cr; SP–Retention only) History of technical communication, its connection to rhetoric. Technical writing, speaking, multimedia, and their applications in science/technology fields (e.g., health science, computer science, agriculture). Portfolios, professional organizations, publications. Guest speakers, discussion, activities.

Rhet 1101. Writing to Inform, Convince, and Persuade. (4 cr; A-F only) Writing effectively in an academic setting. Emphasis on analyzing and creating logical arguments; standards of clarity, cohesion, and correctness. Readings and discussion of issues related to increasing cultural diversity of the United States.

Rhet 1125W. Writing on Issues of Science and Technology. (4 cr; SP–Exemption from 1101 or equiv; A-F only) Ethical, social, and political challenges created by science/technology. Analyzes persuasion strategies through which experts, political decision-makers, and citizens meet these challenges. BioScience, controversies such as cloning, organ transplantation. Controversies over pollution, ozone depletion.

Rhet 1223. Oral Presentations in Professional Settings. (3 cr; A-F only) Techniques for analyzing an audience, determining a purpose, developing an argument, and delivering a presentation. Emphasis on using presentations and basic communication theories.


Rhet 1311. The Family in American Experience. (3 cr) The American family as portrayed in fiction, poetry, drama, and autobiography. Introduction to literature both as artistic and as ideological construct. Analysis of the social critique of American family life.

Rhet 1315. The Land in American Experience. (3 cr) Land in America as idea and as actual space. History of cultural values and the meaning 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.


Rhet 3101. Functional Photography. (3 cr; SP–3101 or DHA 1300; SP–3562 or DHA 1300; A-F only) Basic photographic communication with emphasis on techniques of producing 35mm color transparencies for use in presentations and publications. Students provide their own camera and film.

Rhet 3108W. Gender and the Rhetoric of Science and Technology. (4 cr) How cultural gender roles are affected by science/technology. Influence of gender roles on scientific/technological thinking (e.g., communication strategies, language, image). Values/goals of past/present scientific/technological communities.

Rhet 3221W. Theories of Human Communication. (4 cr) Through lecture, discussion, simulations, and small group work students become familiar with theories and practices of interpersonal, small group, organizational, and scientific, and technical communication.

Rhet 3257. Scientific and Technical Presentations. (3 cr; SP–1222 or #; SP–1223 or #) Oral presentation skills for scientific or technical topics. Visual communication, audience analysis, organizing a presentation, presenting complex material. Emphasizes use of computers.

Rhet 3266. Group Process, Team Building, and Leadership. (3 cr; SP–1222 or equiv or #; SP–1223 or equiv or #) Group processes, team building from perspective of managers/leaders. Communication techniques in small group decision making process. Theories of team/small-group communication. Case studies. Group project for each student.

Rhet 3270. Special Topics. (1-3 cr [max 3 cr]; SP–STC major or #; A-F only) Supervised reading and research on topics not covered in regularly scheduled offerings. Intended primarily for upper division undergraduate students.

Rhet 3335. Rural and Urban Images in Film. (3 cr) Country and city life as described in motion pictures, American and international. The “country mouse/city mouse” conflict from ancient literature to the present. Examine the rhetoric of film as an art form with its own criteria of excellence.


Rhet 3371. Technology, Self, and Society. (3 cr; SP–JC 230 or SP–STC major or #; A-F only) Culture of technology; social and personal meanings it holds. Issues of power, work, identity, and our relation to nature. Mass production and consumption, industrialization of agriculture, changes in art and design, and effects of modern transportation and communication technologies.
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Rhet 3376. Terrorism. (3 cr)

Terrorism is not only an ethical but an international problem. Different cultures have meant different historical trajectories for terrorism. To illustrate this, the course contrasts Algerian, Irish, and Arab terrorism.

Rhet 3381. 20th-Century Culture. (3 cr)

Culture represented in historical/political events and arts of the period. Emphasis on European and American painting with units on architecture, literature, film, and theater, as well as a consideration of philosophy and ethics in other disciplines.

Rhet 3382. The Ethics of Total War. (3 cr)

If ethics exist, even in war, then they have a reality that others might deny them; if there is a right and wrong in war, it has been made that there is a right and wrong everywhere. Experience this claim through its expression in the various media of the arts and humanities: history, memoir, philosophical meditation, film.

Rhet 3383. In Search of Nature. (3 cr)

The human need for a relationship with nature and the ways we organize our environment to reflect this need. Various images such as the pastoral and wilderness are traced historically. Tensions between rural and urban views of nature.

Rhet 3401. Accessing Information Through Electronic Media. (3 cr; QP–Internet access including e-mail and Netscape 3.0 or higher or equiv; SP–Internet access including e-mail and Netscape 3.0 or higher or equiv) Current and developing tools of Internet-based communication. Concepts of e-mail. Usenet news, mailing lists, Web-based chats, MOOs, and Internet Relay Chat. Emphasis on technology examination, assessment of information delivered, and criteria development for information dissemination.

Rhet 3562. Technical and Professional Writing. (4 cr; QP–EngC 1011 or 1101 or 1151 or equiv; jr; SP–EngC 1011 or 1101 or 1152 or equiv) Written/oral communication in professional settings. Gathering information, analyzing audience, assessing conventional formats. Drafting, testing, revising documents. Oral presentation of final reports.

Rhet 3562W. Technical and Professional Writing. (4 cr; QP–EngC 1011 or 1101 or 1151 or equiv; jr; SP–EngC 1011 or 1101 or 1152 or equiv; jr; A-F only) Written/oral communication in professional settings. Gathering information, analyzing audience, assessing conventional formats. Drafting, testing, revising documents. Oral presentation of final reports.

Rhet 3701W. Rhetorical Theory and Scientific and Technical Communication. (4 cr; QP–EngC 1011 or 1101 or 1151 or equiv; SP–EngC 1011 or 1101 or 1152 or equiv; jr; A-F only) Principles/history of rhetorical theory/criticism. Emphasis on case studies, especially “Aristotle’s Rhetoric.” Apply Aristotelian concepts to examples of contemporary communication. Relationship of classical theory to scientific discourse, technical communication.

Rhet 4105W. Corporate Video for Technical Communicators. (4 cr; QP–3562 or equiv or #; SP–3562 or equiv or #; A-F only) Introduction to products, professionals, and processes of corporate video. Students analyze corporate video; submit a proposal, treatment, and script; maintain a journal; complete an interactive unit on production; and conduct research on a video-related topic of their choice.

Rhet 4105. Managerial and Organizational Communication: Planning and Change. (3 cr; QP–3266 or #; SP–3266 or #; A-F only) A study of organizational theory, communication processes, planning, and change with emphasis on action research in the corporate and/or technical settings. Study of organization and management theory to develop organizational consultative skills.

Rhet 4116. Internship in Scientific and Technical Communication. ([3–6 cr] max 6 cr; QP–3562 major or #; SP–3562 major; #; A-F only) Internships 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 is required.

Rhet 4501. Usability and Human Factors in Technical Communication. (3 cr; QP–STC major or #; SP–STC major or #) Principles/concepts of human factors/usability testing. Text-based, expert-based, reader-based, and prototype-based user testing. Developing objects, criteria, and measures. Conducts research in lab, field, and virtual environments. Using software programs to analyze qualitative/quantitative data.

Rhet 4511. Editing and Style for Technical Communicators. (3 cr; QP–3562 [STC major or grad student] or #; SP–3562 [STC major or grad student] or #) Editorial process, levels of style, ethical considerations. Cohesion, clarity, coherence, organization, audience. Writer-editor relationship. Editor’s marks. Copyright issues.

Rhet 4573. Writing and Managing Projects and Proposals. (3 cr; QP–3562; SP–3562; A-F only) Research funding sources, interpret an RFP or program announcement, letters of intent, and grant preparation following the guidelines of an RFP or program announcement. Proposals for nonprofits and/or research or business proposals. Will use Microsoft Project.

Rhet 4671. Principles and Application of Project Management and Design I. (3 cr; QP–3562 [STC major or grad student] or #; SP–3562 [STC major or grad student] or #; A-F only) Two-semester sequence introduces design principles, visual display of data, and management of a variety of publications including newsletters, brochures, and scientific posters, as well as computer software programs to assist in these tasks.

Rhet 4672. Principles and Application of Project Management and Design II. (3 cr; QP–4671 or #; SP–4671) Two-semester sequence introduces design principles, visual display of data, and management of a variety of publications including newsletters, brochures, and scientific posters, as well as computer software programs to assist in these tasks.

Rhet 5111. Message Design: Theory and Practice I. (3 cr; A-F only) Audience analysis, media selection, message design through various theoretical perspectives, including cognitive/schema, social construction, feminist, intercultural theories. Usability testing, contextual inquiry as means to study effectiveness of messages.

Rhet 5112. Message Design: Theory and Practice II. (3 cr; SP–5111) Political, economic, social, and technical aspects of media selection and message design. Media analyses, scripts, budgets, treatments, project-design plans, interactive scenarios. On-line design project.

Rhet 5196. Internship in Scientific and Technical Communication. (3 cr; max 6 cr; QP–3562; STC grad or #; SP–STC grad or #; A-F only) 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 is required.

Rhet 5258. Information-Gathering Techniques in Scientific and Technical Communication. (3 cr; A-F only) Questionnaire development, informational interviewing, focus group interviewing. Guides, schedules, questioning techniques, communication theories in employment cycle interviews. Descriptive statistics used to analyze data.

Rhet 5270. Special Topics. (1-3 cr; max 3 cr; QP–[ISTC or RSTC] major or grad student], #; SP–[ISTC or RSTC] major or grad student] or #; A-F only) Topics specified in Course Schedule.

Rhet 5291. Independent Study. (1-3 cr; max 3 cr; QP–#; SP–#) Supervised research and research on advanced projects not covered in regularly scheduled offerings.


Rhet 5531. Scientific and Technical Communication Course Development and Pedagogy I. (3 cr; QP–Grad or sr or #; SP–Grad; A-F only) Pedagogical philosophy/methodology in beginning writing, speaking, and technical communication class. Introduction to theories underlying teaching/tutoring with technology.

Rhet 5532. Scientific and Technical Communication Course Development and Pedagogy II. (3 cr; QP–5531 or #; SP–5531 or #; A-F only) Pedagogical philosophy/methodology in advanced writing, technical communication, distance education courses. Introduction to theories of teaching in scientific/technical communicating/teaching with multimedia.

Rhet 5533. Scientific and Technical Communication Course Development: Teaching Seminar. (1 cr; QP–5531, 5532; SP–5531 or 5532; A-F only) Mentor with faculty, usually concurrently with student’s first teaching assignment. Students share observations, solves teaching problems in seminar setting. Issues facing new teachers, developing a philosophy of teaching. Focuses on evaluating work in classroom and one training module.

Rhet 5534. Designing Technical Training for Intercultural Audiences. (3 cr; A-F only) Select and research a training topic, write learning objectives and outcomes, set the conditions for learning, complete a comprehensive course outline, and receive feedback on video content.

Rhet 5562. Theory and Practice in International Business Communication. (3 cr; QP–3562; SP–3562 or equiv; A-F only) Theories and practice in international and intercultural communication. Examine cultural differences by studying cultural metaphors and research studies, by interviewing people from other cultures including international business managers and through case studies.

Rhet 5562W. Advanced Technical Communication. (4 cr; QP–3562W or equiv; SP–3562W or A-F only) Focus on creating multimedia, hypertext, on-line help, and Internet documents. Learn linear and nonlinear design; linking; reading and editing on-line. Principles of technical communication taught through projects, scripts, on-line support, and using a mark-up language.

Rhet 5564. Science Writing for Popular Audiences. (3 cr; QP–3562 or SP–3562 or A-F only) How science is “translated” for popular audiences. Rhetorical theory used to teach expository writing. Examine cultural differences by studying cultural metaphors and research studies, by interviewing people from other cultures including international business managers and through case studies. Develop a heuristic for writing articles. Controversial issues surrounding movement from science as “science” to science as “popular.”


Russian (RUSS)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

Russ 1101. Beginning Russian. (4 cr) Develop basic proficiency in listening, speaking, reading, and writing. First of four courses designed to satisfy CLA language graduation requirement.
Russ 1102. Beginning Russian. (4 cr; SP–1101 or equiv) Develop basic proficiency in listening, speaking, reading, and writing. Second of four courses designed to satisfy CLA language requirement.

Russ 1304. Introduction to Russian Literature: 19th-Century Fiction. (3 cr) Introduction to the study of literature illustrated by materials drawn from Russian literature of the 19th century.

Russ 3001. Intermediate Russian. (4 cr; SP–3102 or equiv) Conversation, composition, grammar review, translation, and readings in appropriate literature.

Russ 3002. Intermediate Russian. (4 cr; SP–3001 or equiv) Expansion of experience in speaking, reading, and understanding Russian; reading contemporary texts.

Russ 3101. Third-Year Russian. (3 cr; SP–3002 or equiv) Advanced grammar, conversation, composition, and reading.

Russ 3102. Third-Year Russian. (3 cr; SP–3101 or equiv) Advanced grammar, conversation, composition, and reading.

Russ 3104. Introduction to Literary Analysis. (3 cr; SP–3002 or equiv) Reading and analysis of poetry and prose selections to understand rudiments of studying Russian literature. Readings are in Russian.

Russ 3105. Russian Poetry and Prose. (3 cr; SP–3002) Appreciation of literary values through stylistic analysis and literary interpretation; analysis of humanistic elements. Readings in Russian.

Russ 3211. Modern Russian Literature in Translation. (3 cr; SP–5211) Literary, cultural, and political significance of modern Russian literary works.

Russ 3311. Russian Major Project. (3 cr; SP–Advanced Russian major; A-F only) Directed research and writing in student's chosen field.

Russ 3311H. Honors Major Project in Russian. (3-4 cr; SP–3312, §3311; Russ major; A-F only) Directed research/writing in student's chosen field.

Russ 3404. Tolstoy in Translation. (3 cr; SP–5404) Novels, stories, and philosophical writings of Leo Tolstoy.

Russ 3407. Stories and Plays of Anton Chekhov in Translation. (3 cr; SP–3407) Study of literary devices and themes in selected stories and major plays using the intrinsic approach.

Russ 5409. 19th-Century Russian Novel. (3 cr; SP–3409) The Russian realistic novel from origin to decline; social, political, and intellectual circumstances that led to its emergence as the dominant genre of the “age of realism” in Russia.

Russ 5411. Dostoevsky in Translation. (3 cr; SP–3411) Novels, stories, and other writings of Fyodor Dostoevsky.

Russ 5421. Literature: Middle Ages to Dostoevsky in Translation. (3 cr; SP–3421) 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. (3 cr; SP–3422) Survey of Russian literature from mid-19th century to the present: realism, modernism, feminism and other trends.

Russ 5601. Methods of Translating Fiction from Russian to English. (3 cr; SP–5601, 3012 or equiv) Learning to appreciate a variety of literary styles through the experience of translation.

Russ 5900. Topics in Russian Language, Literature, and Culture. (3 cr; SP–1102 for language topics) Variable topics in Russian language, literature, and culture. Consult department for details.

Russ 5903. Directed Studies. (1-4 cr; SP–§4000, 3001 or equiv) Guided individual study.

Russ 5907. Stories and Plays of Anton Chekhov in Translation. (3 cr; SP–§3407) Reading and analysis of poetry and prose selections to understand rudiments of studying Russian literature.

Russ 5104. Introduction to Literary Analysis. (3 cr; SP–3002 or equiv) Reading and analysis of poetry and prose selections to understand rudiments of studying Russian literature. Readings are in Russian.

Russ 5105. Russian Poetry and Prose. (3 cr; SP–3002 or equiv) Appreciation of literary values through stylistic analysis and literary interpretation; analysis of humanistic elements. Readings in Russian.

Russ 5211. Modern Russian Literature in Translation. (3 cr) Literary, cultural, and political significance of modern Russian literary works.

Russ 5404. Tolstoy in Translation. (3 cr; SP–§3404) Novels, stories, and philosophical writings of Leo Tolstoy.

Russ 5407. Stories and Plays of Anton Chekhov in Translation. (3 cr; SP–§3407) Study of literary devices and themes in selected stories and major plays using the intrinsic approach.

Russ 5409. 19th-Century Russian Novel. (3 cr; SP–§3409) The Russian realistic novel from origin to decline; social, political, and intellectual circumstances that led to its emergence as the dominant genre of the “age of realism” in Russia.

Russ 5411. Dostoevsky in Translation. (3 cr; SP–§3411) Novels, stories, and other writings of Fyodor Dostoevsky.

Russ 5421. Literature: Middle Ages to Dostoevsky in Translation. (3 cr; SP–§3421) 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. (3 cr; SP–§3422) Survey of Russian literature from mid-19th century to the present: realism, modernism, feminism and other trends.

Russ 5601. Methods of Translating Fiction from Russian to English. (3 cr; SP–§3001, 3012 or equiv) Learning to appreciate a variety of literary styles through the experience of translation.

Russ 5900. Topics in Russian Language, Literature, and Culture. (3 cr; SP–1102 for language topics) Variable topics in Russian language, literature, and culture. Consult department for details.

Russ 5903. Directed Studies. (1-4 cr; SP–§4000, 3001 or equiv) Guided individual study.

Sanskrit (Skt)
Department of Classical and Near Eastern Studies
College of Liberal Arts
Skt 5001. Beginning Sanskrit. (3 cr) Introduction to the classical language of ancient India.

Skt 5002. Beginning Sanskrit. (3 cr; SP–5001 or equiv) Introduction to the classical language of ancient India.

Skt 5201. Intermediate Sanskrit. (3 cr; SP–5002 or equiv) Readings in Sanskrit literature.

Skt 5202. Intermediate Sanskrit. (3 cr) Readings in Sanskrit literature.

Skt 5710. Topics: Language and Literature. (3 cr; SP–§4000) Selected reading and/or study of linguistic problems in Sanskrit.

Skt 5992. Directed Readings. (3 cr; SP–§5002 or equiv) Guided individual reading or study.

Scandinavian (Scan)
Department of German, Scandinavian, and Dutch
College of Liberal Arts

Scan 1909. Topics: Freshman Seminar. (3 cr; SP–Fr or max 36 cr; A-F only) Topics specified in Class Schedule.

Scan 3501. Scandinavian Culture Past and Present. (3 cr) 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. (3 cr) 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. (3 cr) Literary and folkloristic investigation of Scandinavian folktales and legends. Readings in translation for nonmajors.

Scan 3504. The Immigrant Experience. (3 cr) Issues of origin and language, immigration and settlement, traditions and values, culture and 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. (3 cr) Modernity’s search for new forms to represent changing historical situations. Ibsen, Strindberg, Hamsun, Selma Lagerlöf, Hjalmar Bergman, Pär Lagerkvist, Karen Blixen, Moa Martinson, Tarjei Vesaas, Edith Södergran, Ingmar Bergman, Lars Gustafsson. All readings in translation.

Scan 3601. Great Literary Works of Scandinavia. (3 cr) Major literary works from the Middle Ages to the present. Readings in translation.


Scan 3605. The Scandinavian Short Story. (3 cr) Short stories by important 19th- and 20th-century authors from all the five Scandinavian countries. Genre theory and practical criticism. Readings in English for non-majors.

Scan 3606. The Expressionist Film in Scandinavia. (3 cr) Study of the expressionist film in Scandinavia with emphasis on the work of Carl Dreyer and Ingmar Bergman. Expressionist film is placed in relation to other manifestations of Expressionism in Scandinavia, i.e., theater and painting. Readings in translation.


Scan 3612. Images of Scandinavia in Art, Film, and Literature. (3 cr) Images of Scandinavians and foreigners. Images of self-knowledge, self-revelation, and otherness. Representative photos and videos of people, locations, and styles. Readings in English.

Scan 3613. Children’s Literature in Scandinavia. (3 cr) 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. Crime in Scandinavian Fiction and Culture. (3 cr)

Scan 3618. Scandinavian Drama. (3 cr)
Studies of representative plays by Henrik Ibsen, August Strindberg, Hjalmar Bergman, Pir Lagerkvist, Nordahl Grieg, Kjeld Abell, and Ingmar Bergman in the context of modern theater with emphasis on politics and society. All readings in translation.

Scan 3619. Travel in Literature: Scandinavians Abroad and Abroad in Scandinavia. (3 cr)
The experiences in literature of Scandinavians going abroad and foreigners coming to Scandinavia. Culture and travel as self-knowledge, self-revelation, and otherness. Slides and videos of travel destinations from the literature. Readings in English.

Scan 3634. Scandinavian Women Writers. (3 cr)
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 9 cr])
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] SP–#, Q) Guided individual reading and study.

Scan 4001. Scandinavian Languages for Reading. (4 cr; SP–Passing score on GPT in a Scandinavian language or equiv)
Designed to help undergraduate and graduate students with knowledge of one Scandinavian language to develop reading competence in the other two. Students will get an introduction to the fundamental differences between Danish, Norwegian and Swedish through reading short texts in all three languages.

Scan 4602. Fiction and Film. (3 cr)
Examines film adaptations of classical Scandinavian literary texts and explores similarities and differences between the viewer’s and reader’s experiences in the media of film, drama and epic narration. Includes works by Bjørnstjerne Bjørnson, Ibsen, Strindberg, Axel Bergman, Dreyer and Losey.

Scan 4614. Introduction to Kierkegaard. (3 cr)
The literary, philosophical, theological, and psychological dimensions of Kierkegaard’s work. Kierkegaard’s influence on 20th-century culture in general and existentialism in particular. Analysis and discussion of selections from Kierkegaard’s entire oeuvre. Readings in English.

Scan 4615. The Family in Scandinavian Literature. (3 cr)
The family as theme in important works of Scandinavian literature from Middle Ages to the present. What does a family mean to its members and to society, and what is the cultural and critical significance of literature about the family? Analytical and historical approaches. Readings in English.

Scan 5002. Scandinavian Romanticism. (3 cr)
Study of Scandinavian literature (poetry, drama, and prose), 1800-1870. Texts in the original languages.

Scan 5003. Scandinavian Mythology. (3 cr)
Study of Scandinavian mythology based on primary sources represented by Saxo Grammaticus, Snorri Sturluson’s Egil Saga and Ynglinga Saga, and the Poetic Edda. Myths are analyzed using contemporary critical approaches. All readings in translation.

Scan 5002. The Icelandic Saga. (3 cr)
Study of the sagas written in 13th-century Iceland. Discussion includes cultural and historical information about medieval Iceland and analysis of a selection of sagas texts using contemporary critical approaches. All readings in translation.

Scan 5613. Contemporary Scandinavian Literature. (3 cr)
An investigation of issues which emerged as extremely important after 1945 in Scandinavia, as articulated by writers and analyzed by researchers in social sciences. All readings in translation.

Scan 5615. Ibsen and the Beginnings of Modern Drama. (3 cr)
Close reading of Ibsen’s “modern tragedies” from A Doll’s House (1879) to When We Dead Awake (1899). Focus is on the dialectics between Ibsen and his society, and dramatic structure and staging conventions in the context of modern theater. All readings in English for nonmajors.

Scan 5616. Strindberg and the Drama in Revolt and Change. (3 cr)
Strindberg as the master of naturalistic drama and the precursor of modernity in European and American theater. Close reading of plays with emphasis on dramatic structure and staging conventions in the context of modern theater. All readings in English for nonmajors.

Scan 5670. Topics in Scandinavian Studies. (3 cr [max 9 cr])
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)
Acquisition of a reading knowledge of Old Norse, linguistic, philological and literary study of Old Norse language and literature.

Scan 5702. Old Norse Saga Reading and Analysis. (3 cr; SP–5701 or equiv reading knowledge of Old Norse) Reading and analysis of Old Norse prose narratives, including close reading and discussion of the critical literature about the prose narratives and medieval Icelandic culture. All primary texts read in Old Norse.

Scan 5703. Old Norse Poetry. (3 cr; SP–5701 or equiv reading knowledge of Old Norse) Reading and analysis of various Old Norse poetry from the Poetic Edda or skaldic poetry. Texts read in Old Norse.

Scan 5704. History of the Scandinavian Languages. (3 cr)
Investigation of the development of the Scandinavian languages from the earliest periods to the present.

Scan 5711. Structure of the Scandinavian Languages. (3 cr; SP–Introductory course in linguistics or #) Investigation of the philological, grammatical, and lexical systems of the Scandinavian languages.

Scan 5993. Directed Studies. (1-4 cr [max 12 cr] SP–#, Q) Guided individual reading and study.

Science in Agriculture (ScAg)

College of Agricultural, Food, and Environmental Sciences

ScAg 1001. Orientation to Science in Agriculture. (1 cr; S-N only)
Discussion of the Science in Agriculture major, current issues, career planning, and professional development. Interviews with faculty and other resource persons.

ScAg 1501. Biotechnology, People, and the Environment. (3 cr; SP–F only)
Basic concepts in genetic engineering as a foundation for studying the impact of biotechnology on agriculture, medicine, industry, and the environment. Controversial aspects of biotechnology related to public policy and further discussion.

ScAg 4009W. Undergraduate Senior Thesis: Science in Agriculture. (1-6 cr [max 12 cr] SP–jr or sr major in ScAg, # or sr major in ScAg, # or F only) Research and thesis experience conducted under supervision of COAES faculty member. Recommended course length is one full year. A written bound thesis and oral presentation of research results is required.

Slavic (Slav)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

Slav 5900. Topics in Slavic Languages and Literatures. (3 cr)
Topics specified in Class Schedule.

Social Work (SW)

School of Social Work

College of Human Ecology

History of American social services; rise of professional social work in response to human need. Social, political, and economic factors influencing public policy and services. Role of social workers with individuals, families, groups, and communities; values and ethics of professional helping role.

SW 3051. Ethnocultural Concepts and Human Services. (3 cr)
Ethno-cultural concepts relevant to service delivery. Critically examine cross-ethnic issues and practice considerations in the field of human services, and explore issues which produce barriers to services for diverse racial and cultural client groups.

SW 3101. Interventions in Community and Social Policy. (3 cr)
Applying social work skills and values to community organization, social action, and social problems using an ecological framework.

SW 3203. Interventions with Individuals and Groups. (3 cr)
Using an ecological framework, apply social work skills and values to work with individuals and small groups

SW 3402. Child Abuse and Neglect: Intervention and Prevention. (3 cr)

SW 3705. Domestic Violence in Global Perspective. (3 cr)
Theories and research on violence in intimate domestic relationships examined through multiple lenses, followed by overview of interventions in Minnesota, United States, and other societies.

SW 4693. Directed Studies. (1-10 cr [max 10 cr] QP–# SP–#)
Guided individual reading or study related to social issues, social work methods, or social work history.

SW 4694. Directed Research. (1-10 cr [max 10 cr] QP–# SP–#)
Guided research related to social issues, social work methods, or social work history.

SW 5051. Human Behavior and the Social Environment. (2-3 cr; QP–Grad student or 12 cr in social sciences or # SP–Grad student or 8 cr social sciences or #) 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 multigenerational family, culture, community, and society.

SW 5052. Ecologies of Child Development Within Communities of Color. (3 cr; QP–Grad or # SP–Grad or #) Examine social, affective, and cognitive development of children of color via a life course, ecological systems framework. Family, school, peers, and community are studied as ecological contexts which influence developmental trajectories for these children and youth. Attention is given to poverty, racism, and oppression.
SW 5101. Historical Origins and Contemporary Policies and Programs in Social Welfare. (3 cr; QP-Grad or 12 cr of social sciences; SP-Grad or 6 cr of social sciences)

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 welfare policy for social welfare programs and services. The emergence of the profession of social work also examined.

SW 5105. Women and Public Policy. (3 cr)

Study of feminism; organizations; issues and conflicts within organizations and movements; methods and sources for studying feminism.

SW 5107. Child Development and Social Policy. (3 cr; QP-Grad or SP-Grad or #)

Examine the intersection of conceptual orientations of development—psychology with policies that affect children and families. Demographic, historic, and social trends underlying the assumptions that drive policies directed at women and children; projections of future trends.

SW 5309. Case Management with Special Populations. (3 cr; QP-Grad or adult special student or SP-Grad or non-degree seeking student or #)

Examine and apply strategies that facilitate the connection of individuals to services and resources. Core components include: assessment, care planning, decision-making, advocacy, and evaluation of outcomes.

SW 5313. Social Work with Older Adults. (2 cr; QP-Grad or adult special student or SP-Grad or non-degree seeking student or #)

Focus on the practice components of social work with older adults including assessment, intervention, and case management. Taught from the perspective of bio-psycho-social strengths and challenges and within the context of current social policy and delivery systems.

SW 5314. Social Work in the Schools. (2 cr; QP-Grad or adult special student or SP-Grad or non-degree seeking student or #)

Application of social work methods in a school setting. Emphasizes assessment, diagnosis, consultation, advocacy, interdisciplinary team building, and crisis intervention.

SW 5315. Social Work Practice in Hospitals and Health Care Settings. (2 cr; QP-Grad or adult special student or SP-Grad or non-degree seeking student or #)

Prepares students for social work practice in a hospital or health care setting. Focus on integration of conceptual and practice subject matter that covers differential assessment, clinical intervention models, impact of acute and chronic illness, special populations, managed care, legal and ethical issues, interdisciplinary team work, and transition planning in health care.

SW 5316. Brief Treatment and the Task-Centered Approach. (2 cr; QP-Grad or adult special student or SP-$5303; grad or non-degree seeking student or #)

The advent and current prominence of brief treatment models in work with individuals, families, and groups, including early empirical bases. Practice with diverse populations in a context of managed care. Emphasis on the task-centered approach including skill training and supervised practice.

SW 5317. Social Work With Involuntary Clients. (2 cr; QP-Grad or adult special student or SP-Grad or non-degree seeking student or #)

Includes theory, ethics, effectiveness, and intervention methods. Work with 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 5318. Family Centered Home Based Services. (2 cr; QP-Grad or adult special student or SP-$5314; grad or non-degree seeking student or #)

Ecological, multysystems approach focusing on the family system. Triadic theory, meta-neutrality, strengths-focus, case management and team treatment. Family-based services evaluated for high-risk, multi-problem families and as an alternative to foster placement.

SW 5319. Adolescents: Norms, Culture, and Health. (2 cr)

Relationships among familial, social, societal, political, economic, environmental, psychosocial, and cultural determinants of adolescent behavior that affect health; major public health issues and problems of adolescents.

SW 5481. Child Abuse Prevention I: Research and Theory. (3 cr; QP-Admission to child abuse prevention specialization, SP-Grad or non-degree seeking student or #)

Foundation of research/theory for level I child abuse prevention studies certificate.

SW 5482. Child Abuse Prevention II: Program Development, Evaluation, and Advocacy. (3 cr; QP-Admission to child abuse prevention specialization, SP-Grad or non-degree seeking student or #)

Design and evaluation of policies and programs of interventions to prevent child abuse. This is the second course of the Child Abuse Certificate program.

SW 5483. Child Abuse Prevention III: Skill Building I—Cultural and Legal Issues. (3 cr; SP-Bachelor’s degree or #)

Risk factors, protective factors, resilience in cultural settings. Identifying/designing strategies appropriate to cultural characteristics and core for course level II child abuse prevention certification.

SW 5484. Child Abuse Prevention IV: Skill Building II—Risk Assessment and Interviewing. (3 cr; SP-Bachelor’s degree or #)


SW 5519. Mediation and Conflict Resolution. (3 cr; SP-$5819)

Develop mediator skills for making informed decisions regarding the appropriateness of mediation for conflicts that frequently confront social worker practitioners such as divorce, neighborhood disputes, conflicts between parents and adolescents, conflicts between spouses, and conflicts between crime victims and offenders.

SW 5525. Global Perspectives on Social Welfare, Peace, and Justice. (3 cr; QP-$1001 or #; SP-$2001 or #)

Role of international social welfare in meeting basic human needs and promoting human rights, social justice, and peace. Theories, models, and social policies in different economic and political systems with emphasis on Third World nations.

SW 5705. Violence in Families. (3 cr; QP-$5706, $5707; grad student or non-degree seeking student or #)


SW 5706. Issues and Interventions in Child Sexual Abuse. (2 cr; QP-Grad or adult special student or SP-$5705; grad or non-degree seeking student or #)

Major issues and interventions involved in child sexual abuse. Develop knowledge and skills in working with sexually abused children and their families. Perceptions of victims, non-offending parents, perpetrators, and other family members; interviewing; justice system; child protection.

SW 5707. Interventions with Battered Women and Their Families. (2 cr; QP-Grad or adult special student or SP-$5705; grad or non-degree seeking student or #)

Current theories, research, and evaluation of interventions with battered women and their families. Focus on practice, e.g., direct work with social institutions, victim-survivors, and assailants and their families.

SW 5708. Substance Abuse and Social Work. (3 cr; QP-Grad or adult special student or SP-Grad or non-degree seeking student or #)

Assessment and intervention in situations involving substance abuse with special emphasis on cross cultural practice. Relationships of substance abuse to areas such as child welfare, mental illness, and violence within families are examined.

SW 5810. Seminar: Special Topics. (1-4 cr)

Topics specified in Class Schedule.

SW 5811. Social Work Ethics. (2 cr; QP-Grad or adult special student or SP-$5881; grad student or non-degree seeking student or #)

Acquire knowledge base and develop skills required to identify ethical issues, resolve ethical dilemmas, and make ethical decisions within the context of the professional practice of social work. Values base and ethical standards of the profession and ethical decision-making models examined in-depth.

SW 5812. Legal Aspects of Social Work. (2 cr; QP-Grad or adult special student or SP-$5813, $5881; second yr MSW or advanced standing or #)

Legal regulation of social work; licensing standards; professional liability; ethical issues and sanctions. Social worker involvement in legal processes of preparing for court; testimony and cross examination. Substantive law affecting social work practice in selected areas such as child protection, mental health, family law, and domestic violence.

SW 5813. Child Welfare and the Law. (2 cr; QP-Grad or adult special student or SP-$5812, $5881; second yr MSW or advanced standing or #)

Social work practice in juvenile court; child abuse and neglect reporting laws, risk assessment, reasonable efforts, case plan, custody proceedings, permanency planning, termination of parental rights, child testimony, social worker testimony, adoption laws.

SW 5991. Independent Study in Social Work. (1-4 cr [max 4 cr])

Independent study in areas of special interest to students and faculty.

Sociology (Soc)

Department of Sociology

College of Liberal Arts

Soc 1001. Introduction to Sociology. (3 cr; SP-$1011)

Scientific study of human societies/behavior. Major theories, methods, concepts, research findings. Characteristics of basic social units, their patterns of interaction, processes of change.

Soc 1011V. Honors: Introduction to Sociology. (3 cr; QP-Honors; SP-Honors)

Scientific study of human societies/behavior. Major theories, methods, concepts, research findings. Characteristics of basic social units, their patterns of interaction, processes of change.

Soc 1012W. Introduction to Sociology. (3 cr; SP-$1001, $1011V)

Scientific study of human societies/behavior. Major theories, methods, concepts, research findings. Characteristics of basic social units, their patterns of interaction, processes of change.

Soc 1090. Topics in Sociology. (1-3 cr; QP-SP-#)

For freshmen. Topics specified in Class Schedule.

Soc 1091. Independent Study. (1-4 cr; QP-SP-#)

Independent study of an established 1xxx course. Available only by request.

Soc 3003. Social Problems. (3 cr; SP-$1001 or #A-F only)

Analysis of major social problems including, inequality, crime, drug abuse, pollution, racism, among others. Examination of proposed solutions and evaluation of consequences of policy decisions.
Course Descriptions

Soc 3090. Topics in Sociology. (1-3 cr; QP–#; SP–#)
For sophomores. Topics specified in Class Schedule.

Soc 3091. Independent Study. (1-4 cr; QP–#; SP–#)
Independent study of an established 3xxx course.
Available only by petition.

Soc 3093. Directed Study. (1-4 cr; QP–#; SP–1001, #, A, J)
Guided individual reading or study at the sophomore level.

Soc 3094. Directed Research. (1-4 cr; QP–#; SP–1001, #)
Guided research experience at the sophomore level.

Soc 3111. Introduction to Crime and Criminal Justice. (3 cr; #, A-F only)
Patterns of crime and victimization by social groups, regions, and over time; classical and contemporary theories explaining crime. Principles of criminal justice and agencies (police, courtroom workings, correctional institutions).

Soc 3201. Inequality: Introduction to Stratification. (3 cr; QP–1001, SP–1001 or equiv; #, A-F only)

Soc 3211W. American Race Relations. (3 cr; #, A-F only)
Surveys conceptual and theoretical tools sociologists use to study race relations in the United States. Empirical focus on the historical experiences among different racial/ethnic groups in the United States including, American Indians, African-Americans, Latinos, Asian-Americans, and white ethnics.

Soc 3221. Sociology of Gender. (3 cr; SP–WoSt 3201; 1001 or #, A-F only)
Organization, culture, and dynamics of gender relations as major features of social life. Gender and racial inequalities in workplace and relationships between gender and race, gender and culture, sexuality, gendered politics, and the women’s movement.

Soc 3251W. Sociological Perspectives on Race, Class, and Gender. (3 cr; #, A-F only)
Race, class, and gender as aspects of social identity and as features of social organization. Experiences of women of color in the United States; exploration of family life, work, violence, sexuality and reproductive possibilities for social change.

Soc 3301W. The Uses of Citizenship: An Introduction to Political Sociology. (3 cr; QP–1001 or #; SP–1001 or #, A-F only)
The ideas of citizenship and the relationship between political community and civil society. Research practitioners volunteering at a policy-relevant site using participant observation methods.

Soc 3351W. Politics and Society in the New Europe. (3 cr; QP–3801; 3801 or #; SP–3841; 3051 or 3051 or #)
Generational change/values, political parties, welfare state, future of European integration, political stability/democratization.

Soc 3411W. Understanding Formal Organizations. (3 cr; QP–1001; SP–1001 or #, A-F only)
Formal organizations as major social influences in our work lives, personality development, social change, and conflict. Life-course analysis of enterprises, bureaucracies, and voluntary organizations.
Organizational control, conflict, coordination, and interorganizational sets and relationships.

Soc 3451W. Urban Community. (3 cr; QP–1001 or 1002, SP–1001 or #)
Social, economic, and political organization of the urban community focusing on racial inequality/ segregation, urban enclaves, social reproduction, and civic participation of elites and residents. Cross-national comparisons, including United States, Europe, and East Asia.

Soc 3501. Sociology of the Family. (3 cr; QP–1001 or #; SP–1001 or #)
Families in contemporary American society; historical and cross-cultural comparisons; interrelationships of families with other social institutions; race, class, and gender in shaping family experiences. Topics may include marriage, divorce, childbirth, parenthood, family violence, and family finances.

Soc 3511. World Population Problems. (3 cr; SP–1001 or #)
Population growth and natural resources, fertility and mortality in less developed nations, population dynamics and forecasts, policies to reduce fertility.

Soc 3661. Japanese Society Today. (3 cr; QP–1001 or #; SP–EAS 3661; 1001 or courses on or exper in East Asia or #, A-F only)
Forms of social relations and values, religion, childhood, family, community, education, work, business organization, politics, social classes, crime and deviance, police, popular culture, status of women and minorities, social protest movements, and international relations.

Soc 3671. Contemporary Chinese Society: Mainland China, Hong Kong, Taiwan. (3 cr; SP–EAS 3671, #; Geog 3671; 1001 or Geog 1301 or equiv social sciences or humanities course or #, A-F only)
Focuses on post-1949 mainland China, Taiwan, and Hong Kong. Chinese family, dating and marriage, rural and urban societies, population, work and occupation, socioeconomic development and inequalities, and impacts of post-1978 reforms.

Soc 3701. Social Theory. (4 cr; QP–#; SP–#; sp–#)
Traditions of social theory that have been basic to sociological knowledge, how they have expanded in contemporary theory, and their applications in selected areas of empirical research.

Soc 3711. Principles of Social Organization. (3 cr; QP–1001, 3801 or equiv; SP–1001 or equiv; #, A-F only)
How and why social organization is possible. Concepts and theories of social structure, primary forms of social organization (groups, communities, networks, formal organizations), basic social processes (integration, differentiation, regulation, change), and how social organization evolves from individual decision making.

Soc 3721. Principles of Social Psychology. (3 cr; QP–1001, 1001 or #)
Impact of social separation on individual attitudes and behaviors, dynamics of interpersonal relationships and small groups, and processes of social interaction.

Soc 3801. Sociological Research Methods. (4 cr; QP–3801, 3802 or equiv or #; SP–3811 or equiv)
Principles and practice of research design, sampling, data collection, analysis, interpretation of results, and writing and reporting of quantitative data. Ethics and administration in sociological research. Required lab.

Soc 3801H. Honors: Sociological Research Methods. (4 cr; QP–[3801, 3802] or equiv) or #; SP–3801 or equiv; #, A-F only)

Soc 3811. Basic Social Statistics. (4 cr; QP–Intermediate algebra or GC 0631; SP–Intermediate algebra or GC 0731)
Descriptive statistics including measures of central tendency, deviation, and association; inferential statistics focusing on hypothesis testing. T-tests, Chi-square tests, variance analysis, and bivariate regression. Statistical software used to analyze sociological data.

Soc 3811H. Honors: Basic Social Statistics. (4 cr; QP–GC 0631 or intermediate algebra, honors; SP–#; GC 0731 or intermediate algebra, honors)
Descriptive statistics, including measures of central tendency, deviation, association. Inferential statistics, focusing on probability, hypothesis testing. T-tests, Chi-square tests, variance analysis, bivariate regression. Statistical software used to analyze sociological data.

Soc 3821. Computer Use for Social Statistics. (1 cr; QP–3801 recommended; SP–#; A-F only)
Elementary use of computer in social statistics applications. Use of Statistical Package for Social Sciences (SPSS) for preparing and analyzing sociological data.

Soc 3991H. Junior Honors Seminar. (3 cr; QP–# or soc honors student; #; SP–# or soc honors student; #, A-F only)
Read and discuss sociological research literature; explore research funding opportunities; design individual research projects.

Soc 4090. Topics in Sociology. (3 cr; QP–1001 or #; SP–#)
Topics specified in Class Schedule.

Soc 4091. Independent Study. (1-4 cr; QP–#; SP–#)
Independent study of an established 4xxx course. Available only by request.

Soc 4093. Directed Study. (1-4 cr; QP–#; SP–#)
Guided individual reading or study at the junior/senior level.

Soc 4094. Directed Research. (1-4 cr; QP–#; SP–#)
Guided research experience at the junior/senior level.

Soc 4101W. Sociology of Law. (3 cr; QP–3101-3102 or #; SP–1001 or 3111 or #; SP–3701 recommended; #, A-F only)
Sociological analysis of law and society. Why people obey the law, social forces involved in the creation of law (both civil and criminal), procedures of enforcement, and the impact of law on social change.

Soc 4102. Criminology. (3 cr; QP–3101-3102 or #; SP–3111 or A-F only)
Nature and types of crime, problems in measuring incidence and trends, and review of sociological theories of crime causation. Implications for crime prevention and control.

Soc 4105. Sociology of Punishment and Corrections. (3 cr; QP–3101-3102 or #; SP–3111 or #; A-F only)
Advanced study of correctional strategies such as prison, probation, and parole. Theories and structures of diversion, probation, parole, and other community corrections programs. U.S. penal policies and practices compared with those in other countries.

Soc 4107. Comparative Law and Social Control. (3 cr; QP–3101-3102 or #; SP–3111 or #; A-F only)
Sociological analysis of legal systems in different countries; relationship between legal systems and society. Cross-national variation in crime rates, criminal justice systems, legal doctrine, litigation, and lawyers.

Soc 4108. Current Issues in Crime Control. (3 cr; QP–3102 or #)
Selected current criminal justice policy examined from the perspective of courts, legislature, community, and interest groups; impact of criminal justice policy changes on society and social control agencies.

Soc 4109. Domestic Criminal Violence. (3 cr; QP–3101-3102 or #; SP–3111 or #; A-F only)
Survey of research on family violence within criminological frameworks. Determination of domestic violence; empirical and theoretical approaches; response of social control agencies.

Soc 4111. Deviant Behavior. (3 cr; QP–3101-3102 or #; SP–3111 or #; A-F only)
Definition and nature of deviant behavior. Social processes associated with deviant careers and social reintegration. Relationship of deviant behavior to social control.

Soc 4114. The Social Control of Women Offenders. (3 cr; QP–3102 or #; SP–3111 or #; A-F only)
Historical and current explanations for female criminality; current trends in women’s participation in crime and their treatment in the legal system.
Soc 4125. Policing American Society. (3 cr; QP–3101-3102 or #; 5162 both recommended; SP–3111 or #; 4161, 5162 both recommended; A-F only) Police organizations/operations from social science perspective. Formal/informal policing: role/functions, legal bases, accountability/restraints, community uses, force, illegal practices.

Soc 4135. Sociology of White-Collar Crime. (3 cr; QP–3101-3102 or #; 5161, 5162 recommended; SP–3111 or A-F only) Causes and consequences of white-collar crime. Control issues including public perception, legislation, criminal law responses (enforcement, sentencing, punishment), and alternative control mechanisms.

Soc 4141. Juvenile Delinquency. (3 cr; QP–3101-3102 or #; 5161, 5162 recommended; SP–3111 or A-F only) Childhood and delinquency. Measuring extent and distribution of delinquent behavior. Applying theories to relationships within the family, school, and peer group. Institutional responses to delinquency and evaluating programs for treatment, prevention, and control.


Soc 4147. Sociology of Mental Illness. (3 cr; QP–1001 or SP–1001 or #) Sociological theory and research related to definitions and origins; epidemiology; reaction patterns; use of mental health services.

Soc 4148. Criminal Psychopathology. (3 cr; QP–Sr or grad; SP–Sr or grad; only grad may take S/N) Psychiatric and psychological aspects of antisocial and criminal behavior as related to issues faced in the courts and criminal justice system.

Soc 4149. Killing. (3 cr; QP–Sr or grad; SP–Sr or grad; only grad and undergrad student) Psychiatric and psychological aspects of various types of killing. The topic of “normal” killings is contrasted with various pathological types. Subtopics include: mentally disturbed killings, sexual killings, killings within families, gang killings, and terrorist killings.

Soc 4161. Criminal Law in American Society. (3 cr; SP–3111 or #) Purposes of criminal law and principles of criminal liability, justification, and excuse; and their application to the law of criminal homicide, sexual assault, drugs, and crimes against property, public order, and morals.

Soc 4162. Criminal Procedure in American Society. (3 cr; SP–3111 or #) Critical examination of how a constitutional democracy balances the need to enforce criminal law and rights of individuals to be free of unnecessary government intrusion.

Soc 4305. Society and the Environment: A Growing Conflict. (3 cr; QP–1001 or environmental course or SP–1001 or environment course or A-F only) Societal causes and cues of ecological problems such as global warming, species extinction, and resource exhaustion.

Soc 4441. Work-Family Links. (3 cr; QP–8 or sociology or SP–1001 or #) Effects of spouses’ work experiences on the family, organization of household work, adolescent employment, occupational attainment; and changes in work organizations related to the increasing prevalence of female employment and dual-career families.

Soc 4461. Sociology of Conflict. (3 cr; QP–3401 or 5401 or equiv or SP–1001 or A-F only) Analysis of social conflicts ranging from family and friends to organizations, industrial, community, sectarian, among others. Contemporary non-lethal and lethal conflicts considered.

Soc 4601. Comparative Social Structure. (3 cr; QP–20 cr sociology or economics or political science or SP–1001 or A-F only) Comparative analysis of selected societies. Application of comparative methods to explain differences, similarities in social structure, development, trends, racial class, status, political economy, policies, social movements, ethnic identities, multicultures, demography. Methods include network models, Boolean analysis.

Soc 4662. Comparative East Asian Development: A New Model for Growth and Prosperity? (3 cr; QP–Soc/EAS 3481; sociology of development or Asian-related courses or SP–Soc/EAS 3661 or East Asian coursework or experience or A-F only) Social and cultural reasons for the rapid growth and relative equity of Japan, South Korea, Taiwan, Hong Kong, Singapore, and more recently, China. Relation of these examples to more general theories of development.

Soc 4881. Sociology of German Society. (3 cr; QP–1001 or SP–1001 or A-F only) The making of German society; institutions in cross-national comparison (including family, education, welfare state, social movements, law); and current issues of German society.

Soc 4903. Social Theory and Cultural Change. (3 cr; QP–Soc/EAS 2000 or social science or SP–1001 or A-F only) Key changes in cultural life in the United States and internationally, and theories that have been developed to understand them. Topics may include work, family, social movements, media and popular culture, and politics.

Soc 4921. Computer Methods in Social Research. (3 cr; SP–3801 or equiv recommended) Computer applications in social science research. Hands-on practice using and evaluating software for conducting research, using the Internet; automated surveys; transforming and analyzing numeric, textual, and graphical data; using simulations and other computer models.

Soc 4966W. Major-Project Seminar. (4 cr; QP–All other required sociology coursework; SP–3701, 3801, 12 cr upper div sociology or SP–1001 or A-F only) Defining research problem. Collecting/selecting data. Analyzing data. Writing report.

Soc 4967W. Advanced Senior Project Independent Study. (1 cr; QP–SP–3701, 3801, 3811, 12 additional upper div sociology cr, A-F only) Guided individual research for the sociology major’s senior project request, conducted in conjunction with enrollment in an upper division sociology course.

Soc 4977V. Senior Honors Proseminar I. (3 cr; QP–Soc honors major or Soc B.S. major, 3201, 3401, 3802, 3803, min 35 cr, min 18 cr in Soc honors major, 3701, 3801, 3811, 9 additional upper div sociology cr, A-F only) Exploring contemporary research for senior thesis. Guidance in defining a problem and reviewing prior theory and research. Presentation and discussion with faculty researchers.

Soc 4978V. Senior Honors Proseminar II. (3 cr; QP–5977, 4977 or A-F; Soc honors major, 3701, 3801, 3811, 9 additional upper division sociology cr, A-F only) Developing the methodology of the 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.

Soc 5090. Topics in Sociology. (1-3 cr; QP–SP–1001 or A-F only) Topics specified in Class Schedule

Soc 5091. Independent Study. (1-4 cr; QP–SP–A-F) Independent study of an established 5xxx course.

Soc 5301W. Social Movements. (3 cr; SP–# for undergrads; 3301 or #) Origins, dynamics, and consequences of social movements. Dilemmas and challenges facing movement organizations. Relationship among movements, parties, and states and role of movements in bringing about change. Case studies of civil rights, labor, environmental, women’s, gay rights, and student movements.

Soc 5455. Sociology of Education. (3 cr; QP–1001 or equiv or SP–1001 or equiv or SP–1001 or A-F only) Subcultures and processes within educational institutions. Links between educational organizations and their social contexts, particularly as these relate to educational change.


### Soil (Soil)

#### Department of Soil, Water, and Climate College of Agricultural, Food, and Environmental Sciences

Soil 1125. The Soil Resource. (4 cr) Basic physical, chemical, and biological properties of soil. Soil genesis classification and principles of soil fertility. Soil survey information used to make a land-use plan. WWW used for lab.

Soil 1425. The Atmosphere. (3 cr; QP–Geog 1425; SP–Geog 1425) A pre-calculus introduction to the nature of the atmosphere and its behavior. Topics 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; weather forecasting.

Soil 1426W. The Atmosphere Laboratory. (1 cr; SP–Geog 1426) Lab offered with 1425. Topics include weather observation; meteorological instrumentation; statistical analysis of weather observations and climatological data; map analysis and weather forecasting.

Soil 2125. Basic Soil Science. (4 cr [max 4 cr]; QP–Soc/EAS 1125; Chem 1015, 1125; Chem 1021 or equiv) Basic physical, chemical, and biological properties of soil. Soil genesis classification and principles of soil fertility. Use of soil survey information to make a land-use plan. WWW used for lab preparation information.

Soil 3221. Soil Conservation and Land-use Management. (3 cr; QP–1020 or 3125 or SP–1125 or 2125 or #) Historical causes and consequences of accelerated soil erosion; wind and water erosion; soil conservation techniques; strategies to optimize soil conservation; consideration of economic, political, and sociological influences on soil conservation planning.


Soil 3521. Soil Judging. (1 cr [max 3 cr]; QP–SP–5510; SP–4511) Learn about collegiate soil judging by participating in a regional or national soil judging contest.

Soil 3612W. Soil and Environmental Biology. (3 cr; QP–3125 recommended, Biol 1009 or equiv, Chem 1015 or equiv; SP–2125 recommended, Biol 1009 or equiv, Chem 1021 or equiv) 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.
Course Descriptions

Soil 4021W. Environmental Impact Statements. (3 cr; QP–AgEc 3610 or #; SP–Biol 1009 or equiv; Math 1251 or Phys 1251 or #) Roles of governmental agencies, consultants, and private citizens in the EIS process. Students will read EIS, EAW and analyze their content and scope, and prepare an EAW for Minnesota EQB guidelines and an EIS on a local project.

Soil 4093. Directed Study. (1-7 cr; max 20 cr; QP–#; SP–#) Research, readings, and instruction.

Soil 4094. Directed Research. (1-7 cr; max 7 cr; QP–#; SP–#) Research under the direction of department faculty.

Soil 4121. Microbial Ecology and Applied Microbiology. (3 cr; QP–5610, 5013 or MicB 5105 or #; SP–3612, Biol 3301 or MicB 3301; A-F only) Interrelationships of microorganisms with terrestrial, aquatic, and organellar environments; survey of bacterial, fungal, and algal components of ecosystems; evolution and structure of microbial communities; population interactions within ecosystems; quantitative and habitat ecology; biogeochemical cycling; and biotechnological approaches to study of microbial ecology; molecular microbial ecology; gene transfer in the environment. Molecular phylogeny of microorganisms.


Soil 4511. Field Study of Soils. (2 cr; QP–3125; SP–2125) Learn to write soil profile descriptions in the field. Clarity and accuracy of student’s own experience to determine soil texture, color, and horizon designations in the field.

Soil 4601. Soils and Pollution. (3 cr; QP–3125, [Chem 1051 or equiv], [Phys 1042 or equiv] or #; 3416 recommended; SP–2125, [Chem 1021 or equiv],[Phys 1042 or equiv] or #; 3416 recommended) Principles of microbiology, chemistry, physics applied to evaluation of pollution of soils. Mitigation of pollution in agricultural/urban settings, remediation of polluted sites.

Soil 5111. Practicum Internship in Precision Agriculture. (2-5 cr; QP–SP–SN only) Practical experience in precision agriculture in agriculture/industry/business. Content and extent of work at the internship site is jointly decided by the instructor, host business representative, and student’s principal adviser.

Soil 5125. Soil Science for Teachers. (3 cr) Basic physical, chemical, and biological properties of soil. Soil genesis classification and principles of soil fertility. WWW used for lab. Soil survey information used to make a land-use plan. Similar to 2125 with less emphasis on chemistry.

Soil 5211. Biometeorology. (3 cr; QP–Biol 1009 or equiv, Math 1251, Phys 1041 or #; SP–Biol 1009 or equiv, Math 1271, Phys 1042 or #) Microclimates, and energy and mass transfer between organisms and their environment. Consider the basic environmental variables of temperature, humidity, wind, and radiation and apply these concepts to plants, animals, and soil-atmosphere exchange processes.

Soil 5232. Vadose Zone Hydrology. (3 cr; QP–[Math 1251 or equiv], [Phys 1041 or equiv] or #; SP–[Math 1271 or equiv],[Phys 1042 or equiv]) 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.

Soil 5311. Soil Chemistry and Mineralogy. (3 cr; QP–[Chem 1052 or equiv], Phys 1042, grad or #; SP–[Chem 1012 or equiv], Phys 1102, grad or #) 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.


Soil 5402. The Atmospheric Boundary Layer. (3 cr; QP–Math 1251, Phys 1251, Stat 3011; SP–Math 1271, Phys 1201, Stat 3011) Calculus-based introduction to the atmospheric boundary layer (ABL), the interface between the earth’s surface and the atmosphere. Topics include ABL development and turbulence, surface energy balance, ABL clouds, air quality, microclimate, and observational and modeling methods.

Soil 5421. Introduction to Atmospheric Science. (3 cr; SP–Math 1271, Phys 1251, Stat 3011; SP–Math 1271, Phys 1201, Stat 3011) Calculus-based, introductory description of the atmosphere including atmospheric dynamics, radiation, thermodynamics, composition of, and cloud processes. Discusses applications to climate, meteorology, the hydrologic cycle, air quality, and biogeochemical cycles.

Soil 5513. Soil Genesis and Landscape Relations. (3 cr; QP–3125 or #; SP–2125) Basic soil morphology and soil profile descriptions; pedogenic processes and models of soil development; soil geomorphology, hydrology, and hillslope processes; digital spatial analysis; soil classification; soil surveys and land use; soil geography.

Soil 5555. Wetland Soils. (2-3 cr; QP–1020 or 3125 or equiv or #; 4511 recommended; SP–1125 or 2125 or equiv or #; 4511 recommended; A-F only) 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, evaluation, mitigation. Field trips, lab, field hydric soil delineation project.


Soil 5711. Forest Soils. (2 cr; QP–1020 or 3125; SP–1125 or 2125) Factors affecting tree growth: estimation, modification, and management effects on site productivity; regeneration.

Soil 5711. Forest Soils. (2 cr; QP–1020 or 3125; SP–1125 or 2125) Factors affecting tree growth: estimation, modification, and management effects on site productivity; regeneration.

South Asian Languages and Cultures (SALC)

Institute of Linguistics and Asian and Slavic Languages and Literatures

College of Liberal Arts

SALC 1506. Introduction to Contemporary South Asia. (3 cr) Land, people, modern historical development, contemporary problems, global setting, and future outlook of South Asia.

SALC 1607. Introduction to Indian Civilization. (3 cr) Indian civilization in light of its development, Social, cultural, economic, and political life. Hindu, Muslim, and Buddhist contributions.

SALC 3201. Ancient Indian Literature in Translation. (3 cr) Literary achievements of Indian civilization from the ancient period.

SALC 3202. Modern Indian Literature in Translation. (3 cr) Literary achievements of Indian civilization from the modern period.

SALC 3204. Folklore of India. (3 cr) A study of the main genres of Indian folklore: folk tales, folk songs, folk epics, folk dramas, proverbs, and riddles; their relationship to Indian society and inter-relation with literary traditions, both great and small.

SALC 3411. Introduction to Indian Philosophy. (3 cr) Major concepts; principal schools of Indian philosophy; traditional and contemporary views.

SALC 3412. Hinduism. (3 cr) Development of Hinduism focusing on sectarian trends, modern religious practices, myths and rituals, pilgrimage patterns and religious festivals, and the interrelationship between Indian social structure and Hinduism.

SALC 3413. Buddhism. (3 cr) Historical account of Buddhist religion in terms of its rise, development, various schools, and common philosophical concept, Indian Buddhism, compared with Hinduism; Buddhism’s demise and revival on the Indian subcontinent.

SALC 3414. Comparative Religions of South Asia. (3 cr) Compares and contrasts basic philosophical concepts, literatures, ideologies, and ritualistic practices of Hinduism, Buddhism, and Jainism with those of Islam and Sikhism.

SALC 3456. The Cinema of India. (3 cr) Survey of cinema of South Asia; aesthetic, social, economic, and political perspectives.

SALC 3506. Introduction to Contemporary South Asia. (3 cr) Land, people, modern historical development, contemporary problems, global setting, and future outlook of South Asia.

SALC 3521. Gandhi and Non-Violent Revolution. (3 cr) Character of Gandhi, his influence over contemporaries, and his hold on the world today.

SALC 3556. Women in India: Role and Repression. (3 cr) Representation of Indian women studied through literature of contemporary Indian women and against background of traditional Indian values and roles.

SALC 3607. Introduction to Indian Civilization. (3 cr) Indian civilization in light of its development, Social, cultural, economic, and political life. Hindu, Muslim, and Buddhist contributions.

SALC 5011. Indo-Aryan Linguistics. (3 cr) Phonological, morphological, and syntactic developments; Indo-European, Old Indo-Aryan, Middle Indo-Aryan, Hindi, and other modern Indian languages.
Spanish (Span)

Department of Spanish and Portuguese Studies
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Span 0221. Reading Spanish. (0 cr; S-N only)
Intensive reading of a variety of texts to provide a basic reading knowledge of Spanish. At the end of the semester students may take the equivalent of the Spanish Graduate Reading Examination.

Span 1001. Beginning Spanish. (4 cr; SP-3015 or 3412 or 3413 or 5411 or 5412 or 5413) Basic listening, speaking, reading, writing skills. Emphasizes development of communicative competence. Some cultural readings.

Span 1002. Beginning Spanish. (4 cr; SP-1001 or [3104]) Listening, speaking, reading, writing. Emphasizes development of communicative competence. Cultural readings.


Span 1014. Business Spanish. (4 cr; SP-1003 or [3104]) Vocabularies, report writing skills, proper format for business communications, conversational fluency on trade-related topics.

Span 1022. Alternate Second-Semester Spanish. (4 cr; SP-Placement above 1001) For students who have studied Spanish in high school or at a community college, or who are transfer students. Begins with an accelerated review of 1001 followed by material covered in 1002.

Span 1102. Beginning Spanish II. Transition. (3 cr; SQ-3101, A-F only) Basic listening, speaking, reading/writing skills. Emphasizes development of communicative competence. Some cultural readings.

Span 1103. Beginning Spanish III. Transition. (3 cr; SQ-1102, A-F only) Basic listening, speaking, reading, and writing skills. Emphasizes development of communicative competence. Some cultural readings.

Span 1105. Intermediate Spanish I, II. Transition. (3 cr; SP-1104 or 4 yrs high school Spanish; A-F only) Speaking/comprehension. Development of reading/writing skills based on materials from Spain and Spanish America. Grammar review. Compositions, oral presentations.


Span 1902. Topics: Freshman Seminar. (3 cr; SP-Gr or max 36 cr; A-F only) Topics specified in Class Schedule.

Span 1907W. Topics: Freshman Seminar. (3 cr; SP-Gr or max 36 cr; A-F only) Topics specified in Class Schedule.

Span 3015. Spanish Composition and Communication. (4 cr; SP-1104 or 1014, GPT) Comprehending/written/spoken texts. Speaking, reading, and writing beyond the intermediate level.

Span 3016. Advanced Communication Skills. (4 cr; SP-3015 or [3104]) Improving language skills for fluency/accuracy in Spanish.

Spans 3022. Advanced Business Spanish. (3 cr; SQ-1106 or equivalent, GPT in Spanish; SP-1014 or 1004 or equivalent) Vocabulary of Spanish business terms. Skills in report writing, proper format for business/formal communications. Developing conversational fluency on trade-related topics.

Spans 3104W. Analysis and Interpretation of Texts. (3 cr; SP-3015 or [3104]; A-F only) Various ways of understanding structure of diverse texts, interpreting their meaning.

Spans 3105W. Introduction to the Study of Hispanic Civilizations. (3 cr; SP-3015, GPT or [3104]; A-F only) Cultural issues generated by integration of Americas into emerging world system via Spanish/Portuguese empires.

Spans 3107W. Introduction to the Study of Hispanic Linguistics. (3 cr; SP-3015, GPT or [3104]; A-F only) Phonology, morphology, syntax, semantics, lexicology, pragmatics, discourse analysis, sociolinguistics, history of Spanish language. Hispanic linguistics as theoretical discipline. Its relationships with social, cultural, literary studies.

Spans 3211. Literary Discourses of Imperial Spain (1492-1800). (3 cr; SP-3211; 3104) Major literary genres of Spain (epic, lyric, narrative, drama, novels, essays) from Middle Ages/Golden Age to Enlightenment. Representative works (ballads, picasques, “vidas,” tragedies, mystical verse, novelas) examined within historical-cultural contexts.

Spans 3211H. Honors: Literary Discourses of Imperial Spain. 1492-1800. (3 cr; QP-3104; honors; SP-3104; A-F only) Major Spanish literary genres (epic, lyric, narrative, drama, novel, essays) from Middle Ages/Golden Age to the Enlightenment. Representative works (ballads, picasques, “vidas,” tragedies, mystical verse, novelas) examined within historical and cultural contexts.

Spans 3212. Literary Discourses of Modern and Contemporary Spain (1800-Present). (3 cr; SP-3104) Representative works of fiction, drama, poetry, essay, and film of the past two centuries. Intellectual and literary movements from romanticism to postmodernism.

Spans 3212H. Honors: Literary Discourses of Modern and Contemporary Spain (1800-Present). (3 cr; SP-3104, honors; A-F only) Representative works of fiction, drama, poetry, essay, and film of the past two centuries. Intellectual and literary movements from romanticism to postmodernism.

Spans 3221. Latin American Colonial Discourses Since 1492. (3 cr; SP-3104; 3105 or #) Critical account of conquest, colonization, and resistance in Spanish America.

Spans 3221H. Honors: Latin American Colonial Discourses Since 1492. (3 cr; SP-3104; honors; A-F only) Critical account of conquest, colonization, and resistance in Spanish America.

Spans 3222. Discourses of Nation Building and Modernization in Latin America. (3 cr; SP-3422; 3104 or 3105 or #) Development of Spanish American modernity, its literary expression since independence from colonial rule. Case studies (e.g., Cuba).

Spans 3222H. Honors: Discourses of Nation Building and Modernization in Latin America. (3 cr; SP-3105, honors; A-F only) Development of modernity in Spanish America, its literary expression since independence from colonial rule. Case studies (e.g., Cuba).

Span 3401. Service Learning in the Chicano/Latino Community. (3 cr; SP-1004, A-F) Students participate in Spanish-speaking community organizations; analyze academic materials dealing with race, class, gender, current patterns of power in the United States, roles of citizens within system; relate this to their community experience.

For definitions of course numbers, symbols, and abbreviations, see page 289.

Span 3501H. Honors: Spanish Civilization—Roots of Modern Spain and Latin America. (3 cr; SP–3501; A-F only) Taught in English. Historical, cultural, and intellectual Discourse.

Span 3502. Spanish Civilization: Modern Spain. (3 cr; SP–3105) Spanish culture from the beginning of the 19th century to the present. Focus on cultural change and its conflicts (via a series of art, literature, and film).

Span 3502H. Honors: Spanish Civilization - Modern Spain. (3 cr; SP–3105, honors; A-F only) Spanish culture from beginning of 19th century to the present. Focus on cultural change and its conflicts as represented in Spanish art, literature, and film.

Span 3510. Issues in Hispanic Cultures. (2-3 cr [max 9 cr]; SP–3410, 3105; A-F only) Practices that have shaped cultural identity of Spanish-/Portuguese-speaking areas: folklore, religion, armed conflict, drug traffic, language/citizenship, political movements, commodification of national myths/ideologies. Topics vary.

Span 3510H. Honors: Issues in Hispanic Cultures. (2-3 cr; SP–3105, honors; A-F only) Practices that have shaped the cultural identity of Spanish- and Portuguese-speaking areas: folklore, religion, armed conflict, drug traffic, language/citizenship, political movements, commodification of national myths/ideologies. Topics vary.

Span 3512. Modern Latin American Civilization. (3 cr; SP–3412, 3105; A-F only) Impact of various forms of modernization on symbolic production in Latin American racial, ethnic, class relations, institutional, and ideological structures.

Span 3512H. Honors: Modern Latin American Civilization. (3 cr; SP–3512; 3104 or 3105 or 3107; A-F only; A-F only) Effect of various forms of modernization on symbolic production in Latin American racial, ethnic, class relations, institutional, and ideological structure.

Span 3601. A Social History of Marginals and Social Offenders. (3 cr) Social history of deviance using a series of first-person narratives by Hispanic authors who lived “marginal” lives and wrote about them. Taught in English.


Span 3609. Commodities and National Myths. (3 cr) Influence on Latin American national identities of selected commodities produced for the world market. Taught in English.

Span 3612. The Man of La Mancha and Quixotic Discourse. (3 cr) Narrative techniques and points of view in Don Quixote; historical, cultural, and intellectual conditions under which the novel was read and debated. Taught in English.

Span 3653. Contemporary Latin and Latin American Drama Written in English. (3 cr) Established works and works-in-progress of the most active Latino playwrights in the United States and historical, political, and cultural developments that make them possible. Lectures, discussion, performances, and visual material. Taught in English.


Span 3701H. Honors: Structure of Spanish—Phonology. (3 cr; SP–3701, 3107, honors; A-F only) Phonemy phonology of modern Spanish. Regional/social variants of the language in Spain and Spanish America.

Span 3702. The Structure of Spanish: Morphology and Syntax. (3 cr; SP–3107 or #; honors; A-F only) Derivational and inflectional morphology. Using morpheme, flexion affix, noun phrase, subject, subordination, and coordination to identify the different morphological and syntactic components of Spanish.

Span 3702H. Honors: Structure of Spanish—Morphology and Syntax. (3 cr; SP–3107 or #; honors; A-F only) Derivational/inflation morphology. Using morpheme, flexional affix, noun phrase, subject, subordination, and coordination to identify different morphological/syntactic components of Spanish.

Span 3703. Origins and History of Spanish and Portuguese. (3 cr; SP–3107 or #) Relationships with Latin; intermediate stage of evolution not considered. Phonetic, morphological, syntactic, and sociolinguistic aspects of diastratic variation.

Span 3703H. Honors: Origins and History of Spanish and Portuguese. (3 cr; SP–3107 or #; honors; A-F only) Relationships with Latin. Phonetic, morphological, syntactic, and sociolinguistic aspects of diastratic variation.

Span 3704. Sociolinguistics of the Spanish-Speaking World. (3 cr; SP–3107) Social variants of 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.


Span 3730. Topics in Hispanic Linguistics. (3 cr; SP–3107 or #) Topics specified in Class Schedule.

Span 3730H. Honors: Topics in Hispanic Linguistics. (3 cr; SP–3107 or #; honors; A-F only) Topics specified in Class Schedule.

Span 3910. Topics in Spanish Peninsular Literature. (3 cr; SP–3910) Focus on a centra theme related to important groups of writers, literary movements, trends, critical approaches, and methods. Topics specified in Class Schedule.

Span 3910H. Honors: Topics in Spanish Peninsular Literature. (3 cr; SP–3910; honors; or # A-F only) Focus on a central theme related to important groups of writers, literary movements, trends, critical approaches, and methods. Topics specified in Class Schedule.

Span 3920. Topics in Spanish-American Literature. (3 cr; SP–3920 or #) Focus on a central theme related to important groups of writers, literary movements, trends, critical approaches, and methods. Topics specified in Class Schedule.

Span 3920H. Honors: Topics in Spanish-American Literature. (3 cr; SP–3920 or #; honors; A-F only) Focus on a central theme related to important groups of writers, literary movements, trends, critical approaches, and methods. Topics specified in Class Schedule.

Span 3940. Figures in Spanish Peninsular Literature. (3 cr; SP–3940) Major writer or group of writers whose work has had an impact on Spanish thought, literature, or analysis of social patterns. Figures specified in Class Schedule.

Span 3950H. Honors: Figures in Spanish Peninsular Literature. (3 cr; SP–3950 or #) Major writer or group of writers whose work has had an impact on Spanish thought, literature, or analysis of social patterns. Figures specified in Class Schedule.

Span 3950. Figures in Spanish American Literature. (3 cr; SP–3950) Major writer or group of writers whose work has had an impact on thought, literature, or social problems. Figures are specified in Class Schedule.

Span 3970. Directed Studies. (1-4 cr; max 9 cr; SP–-# A-F, A, Q) Guided individual reading or study in Hispanic linguistics, language acquisition, cultural studies, and peninsular, Latin American, and U.S. Latino theatre and literatures.

Span 3972V. Honors: Graduation Seminar. (3 cr; SP–3972V) Work on major project about Hispanic linguistics, language acquisition; or about cultural studies; or about peninsular or Latin American or U.S. Latino theatre/literatures.

Span 3972W. Graduation Seminar. (3 cr; SP–3972W) Work on major project about Hispanic linguistics, language acquisition; or about cultural studies; or about peninsular or Latin American or U.S. Latino theatre/literatures.

Span 5106. The Literature of the Reconquest and Feudal Spain. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish) 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, “exempa,” and the Celestina (1499–1502).

Span 5107. The Literature of the Spanish Empire and Its Decline. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese) Major Renaissance and Baroque works of the Spanish Golden Age (16th- and 17th-century poetry, nonfiction prose, novel, drama) examined against the historical background of internal economic decline, national crisis, and ideological apparatus developed by the modern state.
Span 5110. Discursive Formations at the Threshold of 20th-Century Spain. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Theory and representative examples of the realists/naturalist novel (Galdós, Pardo Bazán) in the context of its antecedents (“costumbrismo”), opposes (the idealist/sentimental novel), and turn-of-the-century innovations of modernism and the “generation of 1898.”

Span 5111. Contemporary Spanish Literature Since 1915. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Major literary works and movements in Spain from 1915 to 2000. Neomodernism; surrealism; social realism; literatures of dictatorship and exile; postmodernism. Poetry, novel, drama, essays, film, video/TV, problems of literary history.

Span 5221. Spanish Drama in Performance: 17th-Century Comedia. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Major dramatists of the Spanish comedia (e.g., Cervantes, Lope, Tirso, Calderón). Traditional genres such as tragedy, farce, interludes or autos sacramentales and problems of honor, blood purity, free will, city vs. country, and poetic justice examined against the background of cultural and social history.

Span 5234. Feminism and Literature in Spain. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Spanish feminist thought and practice; literature, cultural discourse, literary and critical theory.

Span 5272. Hispanic Modernism. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Critique of artistic and literary production in Hispanic cultures from mid-19th century to present. Modernity and modernization in Hispanic world. “Generation of 1898.” Castilian, Catalan, and Latin American practices along interdisciplinary and comparative lines.

Span 5316. Spanish Picaroseque Narratives. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)


Span 5525. Caribbean Literature: An Integral Approach. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Literature of Spanish-speaking Caribbean. Emphasizes historical legacy of slavery, African culture, and independence struggles.

Span 5526. Creole Consciousness and Mercantilist Culture. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Discourse production in Spanish America between 1492 and 1700. Conquest and colonial writing and counterwriting; historical origin and evolution and the impact of cultural, political, and socioeconomic factors.

Span 5527. National Literary Consciousness and Free Trade. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Literary movements as part of the process of forming nation-states in Spanish America.

Span 5528. Popular Literary Consciousness: 1900-1950. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese or A)

Spanish-American literature between the eve and aftermath of the two world wars. Impact of modernization, industrialization, and nationalistic and populist thought on emergence of distinctive writing, thematic trends, and literary genre conventions.

Span 5529. National Affirmation and Transnationalization. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese)

Literary trends of the contemporary period (1950 to present) as a reaction to internal social demands for development of independent national cultures and in response to international cultural pressures.

Span 5531. Hispanic Literature of the United States. (3 cr; SP–Three 3xxx or 5xxx Spanish or Portuguese literature courses in Spanish or Portuguese)

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.

Span 5532. Literature and National Disintegration. (3 cr)

Literary reaction to contemporary structural changes in world economic system (1970 to present). Effects on literature as institution. Texts related to revolutionary trends and social movements (feminism, theology of liberation, defense of human rights).

Span 5536. Feminism and Literature in Latin America. (3 cr; SP–Three 3xxx or 5xxx literature courses in Spanish or Portuguese or A)

Latin American feminism in thought and practice; literature, cultural discourse, literary theory.

Span 5701. History of Ibero-Romance. (3 cr; SP–3703; two other 3xxx or 5xxx Spanish linguistics courses or A)

Origins and developments of Ibero-Romance languages; evolution of Spanish, Portuguese, and Catalan.

Span 5711. The Structure of Modern Spanish: Phonology. (3 cr; SP–3701, two 3xxx or 5xxx linguistics courses in Spanish or Portuguese)

Formulating and evaluating a phonological description of Spanish. Approaches to problems in Spanish phonology within metrical, autosegmental, and lexical phonological theories.

Span 5712. The Structure of Modern Spanish: Morphology. (3 cr; SP–A)

Evaluating morphological theories and descriptions of Spanish. Examining of phonological and syntactic effects on morphology.

Span 5713. The Structure of Modern Spanish: Syntax. (3 cr; SP–3702, two 3xxx or 5xxx Spanish linguistics courses or A)

Study and analysis of the principal constructions found in the syntax of Spanish.

Span 5714. Theoretical Foundations of Spanish Syntax. (3 cr; SP–5713 or A)

Linguistic types/processes that appear across languages. Grammatical relations, word order, transitivity, subordination, information structure, grammaticalization. How these are present in syntagm of Spanish.

Span 5715. The Structure of Modern Spanish: Semantics. (3 cr; SP–A)

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.

Span 5716. The Structure of Modern Spanish: Pragmatics. (3 cr; SP–A)

Concepts used in current literature in Spanish pragmatics, such as deixis, presupposition, conversational implicature, speech act theory, and conversational structure.

Span 5731. Spanish Dialectology: Regional and Social Dialects of Modern Spain. (3 cr; SP–Three 3xxx or 5xxx linguistics courses in Spanish or Portuguese)

Major dialect areas of Spain, with distinguishing phonological, morphological, lexical, and syntactic variations of each. Impact of recent cultural, political, and socioeconomic transformations on language.

Spanish-Portuguese (SpPt)

Department of Spanish and Portuguese Studies
College of Liberal Arts

SpPt 3256. Latin American Cultural Discourse. (3 cr; SP–3105)

Cultural assumptions in current modes of interpreting Latin American reality. Representative texts are analyzed.

SpPt 3256H. Honors: Latin American Cultural Discourse. (3 cr; SP–3456, 3256; Span 3105, honors; A-F only)

Cultural assumptions in current modes of interpreting Latin American reality. Analysis of representative texts.

SpPt 3605. Symbolic Expression in Hispanic Politics. (3 cr)

Political upheavals, national liberation movements, and civil wars in Spain, Latin America, Portugal, the Portuguese-speaking countries in Africa, and the Hispanic population in the United States, either individually or in various forms of inter-relations. Political activity and symbolic expression beyond literature. Taught in English.

SpPt 3608. The Political Foundations of Hispanic Theatre. (3 cr)

Study of drama as reality and metaphor in two traditions, modern, and vanguard plays. Works of Cervantes, Lope de Vega, Calderón, Unamuno, Valle-Inclán, Triana, and Urgul. Films, videos, attendance of local and touring theatre groups.
Course Descriptions

**Spch 3611. Modern Latin American and Latino Writing.** (3 cr)
A comparative approach to literature of the Spanish- and Portuguese-speaking Americas, including Latino writing in the United States. Emphasis on women’s writing. All readings in English. Does not count toward Spanish or Portuguese-major.

**Sppt 3930. Selected Topics in Hispanic Cultural Discourse.** (3 cr; SP–Reading knowledge of Span and Port; A-F only)
Cultural discourses in Spanish- and Portuguese-speaking areas. Historical intersections and divergences. Taught in Spanish and/or Portuguese; English when cross-listed. Topics specified in the Class Schedule.

**Sppt 5999. The Teaching of College-Level Spanish: Theory and Practice.** (3 cr; SP–Grad or #)
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.

### Speech-Communication (Spch)

#### Department of Speech—Communication

#### College of Liberal Arts

**Spch 1101. Introduction to Public Speaking.** (3 cr)

**Spch 1101H. Honors: Introduction to Public Speaking.** (3 cr; SP–1101; honors)

**Spch 1102. Introduction to Communication.** (3 cr)
Verbal and nonverbal communication: public address, interpersonal, organizational, intercultural, and electronic. Ways in which new communication technologies influence and are influenced by existing forms of communication.

**Spch 1102H. Honors: Introduction to Communication.** (3 cr; SP–1102; honors)
Verbal and nonverbal communication: public address, interpersonal, organizational, intercultural, electronic. Ways in which new communication technologies influence and are influenced by existing forms of communication.

**Spch 1313W. Honors: Analysis of Argument.** (3 cr; SP–1313W; honors)
Strategies for analyzing, evaluating, generating arguments. Problems in listening/responding to argument.

**Spch 1313W. Analysis of Argument.** (3 cr)
Strategies for analyzing, evaluating, generating arguments. Problems in listening/responding to argument.

**Spch 3110. Topics in Speech-Communication.** (3 cr [max 6 cr]; SP–3110 or 3401 or 3601) (whichever is relevant to topic)
Cases illustrating speech-communication theory, underlying issues.

**Spch 3131. Leadership Theory and Practice.** (3 cr [max 6 cr]; SP–Student hired for leadership position in New Student Programs, #5–S/N only)
Preparation for New Student Program leadership position. Attitudes/skills with leadership and student life issues. Building authentic community.

**Spch 3190H. Honors: Research Seminar in Communication.** (3 cr [max 6 cr]; SP–Honors candidate in spch, A-F only)
Conduct original research in rhetoric, communication theory, or media for honors thesis. Theory, methods, research writing.

**Spch 3201. Introduction to Electronic Media Production.** (3 cr; SP–1101 or #; A-F only)
Production and criticism of messages for the electronic media. Theory and practice in planning, scripting, production, and criticism in various electronic media. Student productions in laboratory.

**Spch 3211. Introduction to U.S. Electronic Media.** (3 cr [max 3 cr])
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.

**Spch 3401. Introduction to Communication Theory.** (3 cr; SP–1102)
Social scientific theory in communication. Communication history; logic of scientific theories and communication types of theories in interpersonal, small group, organizational, intercultural, and electronically mediated communication.

**Spch 3402. Introduction to Interpersonal Communication.** (3 cr)
Nature and function of communication between individuals in formal and informal relationships. Communicative interactions from theoretical and practical viewpoints.

**Spch 3404. Language Borderlands.** (3 cr)
Effect of multilingualism on self identity and sense of community. Subjective and social dimensions of being multilingual. Experience of language loss.

**Spch 3405. Language and Gender.** (3 cr; SP–405; WSt 3305; one workshop credit)
Gender/communication. Interdisciplinary theory. Role of communication in creating, maintaining, reinforcing, and changing gender relations in society.

**Spch 3406. Language and Sexual Diversity.** (3 cr)
Language use in lesbian, gay, bi-sexual, and transgender communities. Ways in which sexual diversity affects language use.

**Spch 3411. Introduction to Small Group Communication.** (3 cr)
Cooperative thinking in task-oriented groups. Planning, preparing for, and participating in small groups in private and public contexts.

**Spch 3422. Interviewing and Communication.** (3 cr; SP–1101 or #; A-F only)
Application of communication concepts in information interview process. Practical experience in planning, conducting, and evaluating informational, journalistic/elite, helping, persuasive, appraisal, and employment interviews. Class training and field experience.

**Spch 3431. Persuasion Theories.** (3 cr; SP–Soph recommended)
Sociological, psychological, and communication perspectives. Theoretical knowledge applied to persuasion problems.

**Spch 3441. Introduction to Organizational Communication.** (3 cr; SP–1101 or equiv)
Functions of communication in work groups, in organizational hierarchies, and between organizations.

**Spch 3451W. Intercultural Communication: Theory and Practice.** (3 cr; SP–Planning an intercultural experience)
Theories and factors influencing intercultural communication. Development of effective intercultural communication skills.

**Spch 3452W. Communication and the Intercultural Experience.** (3 cr; SP–Return from an intercultural experience)
Intercultural experience explored through stories and story telling, participant observation, and social scientific theory. Constructs include identity, learning styles, cultural adaptation, values, ethics.

**Spch 3601V. Honors: Introduction to Rhetorical Theory.** (4 cr; SP–1101, honors student; A-F only)
Theoretical systems to explain/direct the creation of public discourse. Traditional rhetoric to contemporary perspectives. Using theory to explain practice of public discourse.

**Spch 3601W. Introduction to Rhetorical Theory.** (3 cr; SP–1101)
Theoretical systems intended to explain or direct the creation of public discourse. Traditional rhetoric to contemporary perspectives. Using theory to explain the practice of public discourse.

**Spch 3605W. Persuasive Speaking and Speech Writing.** (3 cr [max 3 cr]; SP–Soph)
Performance and composition with critical inquiry into rhetoric theories. Develops writing, thinking, and speaking skills.

**Spch 3615. Argumentation.** (3 cr; SP–Soph)
Argument(s) in relation to logic, dialectics, and rhetorical performance. Structured reasoning, informal conversation, formal arguments in technical professions, communication ethics, and public/social argumentation.

**Spch 3625. Communication Ethics.** (3 cr; SP–1102 or #; A-F only)
Applying concepts and theories from philosophy and social science to ethical issues in interpersonal, group, organizational, intercultural, and media communication.

**Spch 3631W. Freedom of Speech.** (3 cr)
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.

**Spch 3970. Directed Study.** (1-3 cr [max 6 cr]; SP–One Spch course, #, A-F only)
Guided individual reading or study.

**Spch 3980. Directed Instruction.** (3 cr [max 6 cr]; SP–#)
Supervised planning and teaching of undergraduate courses.

**Spch 3990. Research Practicum.** (1-3 cr [max 6 cr])
How communication research is designed, implemented, and published. Focus is on working with senior faculty on their current research projects.

**Spch 4231. Comparing Electronic Media Systems.** (3 cr; SP–2211 or #)
Historical, political, and sociological aspects of electronic media systems throughout the world, including United States, Canada, Great Britain, France, Germany, and Russia. Regulation and impact on political, social, and economic development.

**Spch 4235. Electronic Media and Ethnic Minorities—A World View.** (3 cr)
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.

**Spch 4291. New Telecommunication Media.** (3 cr; SP–3211 #)
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.

**Spch 4452W. Intercultural Interaction: Theory and Application.** (3 cr; SP–#)
Small group interaction across cultures for both international and U.S. students. Discussion, simulations, readings.

**Spch 4616. African American Civil Rights Rhetoric.** (3 cr; SP–Jr)
Uses the struggle of African Americans to explore and analyze philosophical concepts, political issues, moral complexities, and discursive characteristics of civil rights rhetoric.

**Spch 4621W. Rhetoric of Feminism.** (3 cr; SP–4615 or #)
History and criticism of the rhetoric of feminism from 19th century to the present.
Spc 5110. Special Topics in Communication Theory. (3 cr [max 6 cr])
Advanced theoretical problems. See department office for current offering.

Spc 5210. Contemporary Problems in U.S. Electronic Media. (3 cr [max 3 cr]; SP–3211)
Problems affecting U.S. commercial and educational electronic media. Audiences; race/gender issues; regulation.

Spc 5220. Television Genres. (3 cr [max 3 cr])
Nature, historical development, and influence on society of specific genres of television programming: drama, situation comedy, mystery, soap opera. Program genre change over time and how society, government, and the economics of production influence that historical process.

Spc 5233W. Electronic Media and National Development. (3 cr)
Use of electronic media to change social, political, economic, and cultural life. Use by developing nations to improve agricultural practices, hygienic standards, literacy, and awareness of civic responsibility.

Spc 5261. Communicative Processes in Electronic Media. (3 cr; SP–3211 or #)
Organizational practices of media communicators; media content as a link between communicators and audiences; how viewers use and process media content.

Spc 5401. Advanced Theories of Communication. (3 cr; SP–3401 or grad)
Survey of major theoretical approaches to communication including: positivism, constructivism, and systems.

Spc 5402. Advanced Interpersonal Communication. (3 cr; SP–1102, 3402 or 3411 or 3431 or 3441 or 3451)
Social scientific approaches to interpersonal communication; theory and research findings.

Spc 5404. Language and Culture. (3 cr; SP–3401 or #)
How language and communication transmit cultural knowledge, attitudes, and beliefs. Connections among language, thought, and culture. Social and ethnic perspectives on the study of language and communication.

Spc 5406. Communication and Gender. (3 cr; SP–One women's studies course or #)
How gender affects verbal communication. Development of analytical skills through readings, exercises, research that raise awareness of the power of language and the influence of gender prescriptions. Comparisons across languages where possible.

Spc 5408. Social Cognition. (3 cr)
Role of cognitive processes in communication studies. Modulated by cognitive, attention, memory and their use in communication. Evaluation of social cognition theory and research.

Spc 5411. Small Group Communication Research. (3 cr; SP–3411 or #; A-F only)
Survey of small group communication research; theory and practice. Group decision-making and leadership.

Spc 5421. Quantitative Methods in Communication Research. (3 cr; SP–3401 or #; A-F only)
Social scientific methods used in studying human communication: statistical data processing laboratory for additional credit.

Spc 5431. The Process of Persuasion. (3 cr; SP–3431)
Communication campaigns (e.g., advertising, political) illustrating persuasive processes and theories. Research paper required.

Spc 5441. Communication in Human Organizations. (3 cr; SP–9 or 12 social science, 3441 or #)
Communication in organizational settings. Organizational structure and dynamics and their effect upon the communication process. Individual projects.

Spc 5451W. Intercultural Communication Processes. (3 cr)
Theories and research on cultural differences in values, norms, behaviors, and perceptions that affect communication across cultures internationally and domestically.

Spc 5461. Conversation Analysis. (3 cr; SP–Ling 3001 or Ling 5001)
Discourse processes in dyadic and multiparty conversation. Application of concepts through analysis of conversations.

Spc 5462. Field Research in Spoken Language. (3 cr; SP–5461, Ling 3001 or Ling 5001)
Transcribing and analyzing verbal communication and movement related to it. Applying concepts to recorded conversations.

Spc 5611. Survey of Rhetorical Theory. (3 cr; SP–1101)
Survey of rhetorical theory from ancient to contemporary period; application of theory to public discourse.

Spc 5615W. Introduction to Rhetorical Criticism. (3 cr; SP–1101, 3611 recommended)
Analysis of public discourse using various theoretical perspectives.

Spc 5617. History and Criticism of U.S. Public Discourse: 1630-1865. (3 cr; SP–Jr)
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.

How discourse has been used to establish or maintain power. Speeches and public debates used to examine U.S. public address from the mid 19th century to 1950.

Spc 5790. Directed Study. (1-3 cr; max 6 cr; SP–Nine 3xxx-5xxx Spch cr. or #; A-J 1-5 N only)
Guided individual reading or study.

Sport Studies (SpSt)

School of Kinesiology and Leisure Studies

College of Education and Human Development

SpSt 1701. Introduction to Sport Studies. (2 cr; OP–Spst majors only; SP–Spst majors only; A-F only)
Scope and motive of the study of sport from a sociological, psychological, historical, economic, and scientific perspective; issues in sport.

SpSt 3111. Sports Facilities. (2 cr; OP–Spst majors only; SP–Spst majors only; A-F only)
A general identification of sports facilities including the special features that make them unique. Emphasis on understanding the role and purpose of planning for such facilities.

SpSt 3112. Applied Sport Science. (2 cr; OP–Spst majors only; SP–Spst majors only; A-F only)
Introduction to the historical discovery, transitional development, and current application of basic scientific principles and technology to the improvement of sport performance.

SpSt 3134. Organization and Management of Sport. (3 cr; OP–2 cr coaching course, kin or spst major; SP–Spst majors only; A-F only)
Principles, policies, and procedures involved in the administration and management of sports programs at the interscholastic and intercollegiate levels.

SpSt 3421. The Business of Sport. (2 cr; OP–Spst majors only; SP–Spst majors only; A-F only)
Overview of the economic and business aspects of professional, collegiate, school-based and amateur sport; financing issues and methods; impact of sport on communities, regions; and states; the sport and leisure market.

SpSt 3501. Sport in a Diverse Society. (3 cr; OP–Spst; A-F only)
Relationship between sport and contemporary social institutions (politics, religion, economics, education, mass media). Emphasizes groups/individuals who have historically been marginalized or excluded from sport participation. Variables such as race, sex, social class, sexual orientation, physical (dis)abilities also emphasized.

Statistics (Stat)

School of Statistics

College of Liberal Arts

Stat 1001. Introduction to the Ideas of Statistics. (3 cr; OP–High school algebra; SP–High school algebra)
Controlled vs. observational studies; presentation and description of data; chance variation; correlation and causality; confidence intervals; statistical tests.

Stat 1905. Freshman Seminar. (3 cr; max 6 cr; A-F only)
Topics specified in Class Schedule.

Stat 3011. Introduction to Statistical Analysis. (4 cr; OP–Two yrs high school math; SP–5012; two yrs high school math)

Stat 3021. Introduction to Probability and Statistics. (3 cr; OP–[Differential, integral] calculus; SP–Math 1272)
Elementary probability; probability distributions. Sampling, elements of statistical inference. Regression.

Stat 3022. Data Analysis. (4 cr; OP–3011 or 3091; SP–3011 or 3021)
Practical survey of applied statistical inference and computing covering widely used statistical tools: multiple regression, variance analysis, experiment design, nonparametric methods, model checking and selection, variable transformation, categorical data analysis, logistic regression.

Stat 4102. Theory of Statistics II. (4 cr; QP–5121; SP–5102, 4101)
Estimation. Significance tests. Distribution free methods. Power. Application to regression and to
analysis of variance/count data.

Stat 4893W. Senior Paper. (1 cr; QP–Stat major; SP–Stat major)
Either (1) paper on specialized area or (2) consulting project or (3) original computer program. Directed study.

Stat 5021. Statistical Analysis. (4 cr; QP–College algebra or #; SP–3301; College algebra or #; Stat course recommended)
Intensive introduction to statistical methods for graduate students needing statistics as a research technique.

Stat 5031. Statistical Methods for Quality Improvement. (4 cr; QP–3012 or 3091 or 5021 or 5122 or 5132 or 5152; Math 1252; SP–3012 or 4012 or 5021 or 5122 or 5102 or 5122; Math 1272)

Stat 5041. Bayesian Decision Making. (3 cr; QP–5122 or 5132 or 5101 or #; SP–4101 or 5021 or 5101 or #; AXioms for subjective probability/utility. Optimal statistical decision making. Sequential decisions/ decision trees. Backward induction. Bayesian data analysis.

Stat 5101. Theory of Statistics I. (4 cr; QP–#5121, 5122; Math 3252; SP–#4101, 5651; Math 2263)
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.

Stat 5102. Theory of Statistics II. (4 cr; SP–5102; #5101 or Math 5651)

Stat 5201. Sampling Methodology in Finite Populations. (3 cr; QP–3091 or 5021 or #; SP–3011 or 5021 or #; Simple random, systematic, stratified, and unequal probability sampling. Ratio, model based estimation. Single stage, multistage, and adaptive cluster sampling. Spatial sampling.

Stat 5302. Applied Regression Analysis. (4 cr; QP–#5161; 5101 or SP–5122 or 5133 or #5153; SP–3022 or 5101 or #5122 or 5101 or #; 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.

Stat 5303. Designing Experiments. (4 cr; QP–#5163; 5101 or SP–5133 or #5153; SP–3022 or 4102 or 5101 or #5122 or 5101 or #; Analysis of variance. Multiple comparisons. Variance-stabilizing transformations. Contrasts. Construction/analysis of complete/incomplete block designs. Fractional factorial designs. Confounding split plots.


Stat 5601. Nonparametric Methods. (3 cr; QP–5021 or 5122 or 5132 or 5152 or SP–3022 or 4012 or 5021 or #; Order statistics. Classical rank-based procedures (e.g., Wilcoxon, Kruskal-Wallis). Goodness of fit. Topics may include smoothing, bootstrap, and generalized linear models.

Stat 5931. Topics in Statistics. (3 cr; SP–#)
Topics vary according to student needs and available staff.

Stat 5932. Topics in Statistics. (3 cr; SP–#)
Topics vary according to students’ needs and available staff.

Stat 5993. Tutorial. (1-6 cr; [max 12 cr; SP–#]
Directed study in areas not covered by regular offerings.

Sumerian (Sum)
Department of Classical and Near Eastern Studies
College of Liberal Arts
Sum 5011. Elementary Sumerian I. (3 cr; SP–Adv undergrads with 2 yrs of another foreign lang, grads) Sumerian writing and grammar. Readings from classical Sumerian literary and historical texts.

Sum 5012. Elementary Sumerian II. (3 cr; SP–#)
Reading from classical literary and historical texts.

Swedish (Swe)
Department of German, Scandinavian, and Dutch College of Liberal Arts
Swed 1001. Beginning Swedish. (4 cr)
Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). With a proficiency emphasis. Topics include everyday subjects (shopping, directions, family, food, housing, etc.).

Swed 1002. Beginning Swedish. (4 cr; SP–1001)
Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and the Swedish culture.

Swed 1003. Intermediate Swedish. (4 cr; SP–1002)
Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments.

Swed 1004. Intermediate Swedish. (4 cr; SP–1003)
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.

Swed 3011. Advanced Swedish. (4 cr; SP–Passing score on the GPT)
Designed to help students achieve advanced proficiency in Swedish. Discussion of fiction, film, narrative, and professional prose is complemented by grammar and vocabulary building exercises and a systematic review of oral and written modes of communication.

Swed 3012. Advanced Swedish. (4 cr; SP–Passing score on GPT)
Discussion of novels, short stories, plays, articles. Structural, stylistic, vocabulary-building exercises.

Swed 4001. Beginning Swedish. (2 cr; SP–1001, passing score on GPT in another language or grad) Course meets concurrently with Swed 1001; see Swed 1001 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Swed 4002. Beginning Swedish. (2 cr; SP–1002, passing score on GPT in another language or grad) Course meets concurrently with Swed 1002; see Swed 1002 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Swed 4003. Intermediate Swedish. (2 cr; SP–1003, passing score on GPT in another language or grad) Course meets concurrently with Swed 1003; see Swed 1003 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Swed 4004. Intermediate Swedish. (2 cr; SP–1004, passing score on GPT in another language or grad) Course meets concurrently with Swed 1004; see Swed 1004 for description. This option is designed for students who have satisfied the GPT requirements in another language or are graduate students or are otherwise exempt.

Teaching English as a Second Language (TESL)
Institute of Linguistics and Asian and Slavic Languages and Literatures
College of Liberal Arts
TESL 3001. Basics in Teaching English as a Second Language. (4 cr; SP–Ling 5001)
Overview of the structure of the English language geared to the needs of teachers of English to speakers of other languages. Study the structures of English from the point of view of second-language speakers as well as native speakers. Phonetics, phonology, morphology, and some aspects of the syntax of the English language. Part of a two-course sequence.

TESL 5401. Language Analysis for Teachers of English as a Second Language. (4 cr; SP–Ling 5001)
Overview of the structure of the English language geared to the needs of teachers of English to speakers of other languages. Study the structures of English from the point of view of second-language speakers as well as native speakers. More complex structures of English syntax, as well as English semantics, pragmatics, and discourse structures. Second in a two-course sequence.

TESL 5402. Language Analysis for Teachers of English as a Second Language. (4 cr; SP–5401, Lign 5001)
Overview of the structure of the English language geared to the needs of teachers of English to speakers of other languages. Study the structures of English from the point of view of second-language speakers as well as native speakers. More complex structures of English syntax, as well as English semantics, pragmatics, and discourse structures. Second in a two-course sequence.

TESL 5721. Methods in Teaching English as a Second Language. (3 cr; SP–Ling 3001 or 5001 or #; S-N only)
Introduction to methods for teaching English as a second language to adults.

TESL 5722. Practicum in Teaching English as a Second Language. (3 cr; SP–ESL major or minor; 5721 or #; S-N only)
Observation of, and practice in, teaching English as a second language to adults at the college or university level.

TESL 5723. Materials for Teaching English as a Second Language. (3 cr; SP–ESL major or minor; 5722 or #; S-N only)
Prepares students to engage in meaningful, appropriate, and fair second-language assessment practices. Students develop ability to interpret text results and to construct new forms of assessment.
Theatre Arts (Th)
Department of Theatre Arts and Dance
College of Liberal Arts

Th 1101W. Introduction to the Theatre. (3 cr)
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. Drama and the Media. (3 cr)
Drama and cultural values implicit in media. Study of primary texts (biography, history, the novel, plays), video clips, and complete films. How the film medium shapes cultural identity.

Th 1111. Introduction to the Theatre—Condensed Version. (3 cr; SP—Thatre majors/primmajors should not enroll)
Art/craft of theatre. Appreciation, critical analysis of plays/performances. Ways theatre interacts with society. Examples from diverse theatre over the ages and from various cultural perspectives. Seven weeks.

Th 1112. Drama and the Media—Condensed Version. (3 cr)
Drama/cultural values implicit in media. Study of primary texts (biography, history, the novel, plays); video clips; complete films. How film/television shape collective cultural identity. Seven weeks.

Th 1301. Beginning Acting for Non-Theatre Majors. (3 cr; QP—1101 or #; SP—1101 or #)
Background/techniques of acting as viewed/practiced in theatre, society, and student's own relationships.

Th 1321. Beginning Acting. (3 cr; QP—1101; SP—1101 or #)
Acting technique for stage. Emphasizes Stanislavskian-based vocabulary. Exercises/improvisations leading to scene work/monologues.

Th 1351. Vocal Production and Beginning Movement for Actors. (3 cr; QP—1101, or 1101, or #)
Part I: exercises to develop abdominal breathing, tonal placement, and clear articulation; analysis/performance of prose, poetry, and dramatic texts. Part II: body movement/relation combined with acting technique leading to individual/group performance.

Th 1361. Singing for Musical Theatre. (3 cr; A-F only)
Beginning singing, interpretation, part singing, phonetics, audition techniques. Solo/ensemble presentations at final class performance.

Th 1401. Introduction to Performance. (4 cr)

Th 1405H. Honors: The Theatre—Introduction and Beyond. (2 cr; QP—1101, or #; SP—1105; 1101 or #)
Topics specified in "Class Schedule."

Th 1909W. Topics: Freshman Seminar. (3 cr; SP—Fr or max 36 cr; A-F only)
Topics specified in "Class Schedule."

Th 1910W. Topics: Freshman Seminar. (3 cr; A-F only)
Topics specified in "Class Schedule."

Th 3100. Theatre Practicum. (1 cr; max 4 cr; SP—1101; only two registrations as actor may count toward major; S-N only)
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; QP—#; SP#)
Study of traditional play structure, characterization, dialogue, dramatic action, and theme. Final project is a one-act play.

Th 3171. History of the Theatre: Ancient Greece Through Neo-Classicism. (3 cr; QP—Th major or #; SP—Th major or #)
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; QP—Th major or #; SP—Th major or #)
Theatrical practices, staging conventions, dramatic structure of plays.

Th 3261. Dramas of Culture: 20th-Century French and Francophone Theatre. (3 cr; SP—Fren 3101)
Key movements, dramatists, and contexts of 20th-century French and Francophone theatre. Naturalist and symbolist legacies as well as existentialist, avant-garde, and contemporary performance and drama.

Th 3321. Intermediate Acting I. (3 cr; QP—[1321, 1341] or #; SP—1101, 1321, 1351)

Th 3322. Intermediate Acting II. (3 cr; QP—#; SP—3321)

Th 3361. Introductory Musical Theatre. (3 cr; A-F only)
History of American musical theatre featuring videos/discussions, basic music theory, voice, dance, audition techniques. Solo/ensemble presentations for public class performance.

Th 3513. Design and Technical Production I. (4 cr; QP—#; SP—1101, 1504, 3100/5100 or #; SP—3513)
Theory, process, and execution of design/technology from script to production on stage. Scenery/properties.

Th 3515. Design and Technical Production II. (4 cr; QP—1101, 1504, 3100/5100 or #; SP—3513)
Theory, process, and execution of design/technology from script to production on stage. Costumes/lighting.

Th 3711. Beginning Directing. (3 cr; QP—1101, 1321; jr, SP—1101, 1321; jr or sr if #)

Th 3950. Topics in Theatre. (1-4 cr; max 8 cr; QP—Vary by topic; SP—Vary by topic; Sr or #)
Topics specified in the "Class Schedule."

Th 4131. Shakespeare: Comedies, Romances, and Problem Plays. (3 cr; QP—#; SP—1101 or #)
Shakespeare’s plays as live theatre, both for the stage and in various media. Work of actors, directors, and designers in Shakespearean plays.

Th 4177W. Survey of Dramatic Literature I: Strategic Interpretation. (3 cr; SP—[3171, 3172], jr or sr; or #)
Basic principles of script analysis as applied to stage practice from traditional/modern approaches. Students read plays, critical perspectives. Discussion, critical writing, performance.

Th 4178W. Survey of Dramatic Literature II: Representation and Its Effects. (3 cr; SP—[3171, 3172], jr or sr or #)
In-depth look at how plays actively participate in production of social values and of society itself. Emphasizes consequences of choices theatre artists make.

Th 4322. Acting for the Camera. (3 cr; QP—#; MFA actor or #; SP—3321)

Th 4532. Makeup for the Actor. (2 cr; QP—1101; SP—#)
Topics may include functions/aesthetics of stage makeup, application techniques, prosthetics, and facial hair.

Th 4711. Intermediate Stage Direction. (3 cr; SP—3711 or #)

Th 4901. Senior Seminar. (1 cr; max 2 cr; QP—Sr, Th or Dnce major; SP—Sr, Th or Dnce major or #; must reg for 1 cr; fall, 1 cr spring in same acad yr; S-N only)
Development of senior project, alone or in groups, under guidance of faculty members.

Th 4905H. Honors Course: Tutorial Seminar in Theatre Arts. (2-4 cr; max 4 cr; SP—#; honors; Th or Dnce major, limit (2 cr; for cum laude or magna cum laude), 4 cr for summa cum laude)
Independent research/reading in preparing honors thesis or selected creative project.

Th 5100. Theatre Practicum. (1-4 cr; max 4 cr; QP—#; SP—#; Sr, Th or Dnce major; limit (2 cr; for cum laude or magna cum laude), 4 cr for summa cum laude)
Individual creative projects in production of approved plays as an actor, director, dramaturg, or playwright. (See 5500 for design practicums.)

Th 5171. History of the Theatre I. (3 cr)

Th 5172. History of the Theatre II. (3 cr)
Theatre as a mirror of society. Aesthetics, philosophy, and practices of theatre arts. Mid-18th century to the present.

Th 5181. Blacks in American Theatre. (3 cr)
Historical survey of significant events in the development of American Black theatrical tradition; essays, plays, playwrights, and theatres from early colonial references to Black Arts Movement.

Th 5182. Contemporary Black Theatre: 1960-Present. (3 cr)
Essays, plays, playwrights, and theatres that have contributed to contemporary Black theatre. From the beginning of the Black Arts Movement to the present.

Th 5310. MFA Actors Studio. (1 cr; max 3 cr; QP—#; MFA major or # by audition; SP—MFA major or # by audition; S-N only)
Application of elements of performance, including research, creative thinking, and rehearsal.

Th 5321. Career Preparation for the Actor. (3 cr; QP—#; MFA actor or #; SP—3322)
Information/techniques necessary for professional acting career.

Th 5331. Physical Approaches to Acting: Use of Self. (2 cr; QP—#; SP—#; MFA major or # by audition; S-N only)
Movement for advanced actors: awareness, flexibility, observation, release, improvisation in both verbal and nonverbal physical modes.

Th 5332. Physical Approaches to Acting: Stage Combat. (2 cr; QP—#; MFA major or # by audition; SP—MFA major or # by audition; S-N only)
Movement for advanced actors: awareness, flexibility, observation, release, improvisation in both verbal and nonverbal physical modes; focus on stage combat.

Th 5333. Physical Approaches to Acting: Period Styles. (2 cr; QP—#; SP—#; MFA major or # by audition; S-N only)
Movement for advanced actors: awareness, flexibility, observation, release, improvisation in both verbal and nonverbal physical modes; focus on period styles of movement.
Course Descriptions

Th 5334. Physical Approaches to Acting: Mask. (2 cr; QP–3323, # by audition or MFA actor; SP–MFA or # by audition)
Movement for advanced actors: awareness, flexibility, observation, release, improvisation in both verbal and nonverbal physical modes; focus on mask work.

Th 5341. Speech for Actors. (2 cr; QP–MFA or SP–MFA or #; SP–MFA or #; A-F only)
Theories of professional voice production, anatomy and physiology of the vocal mechanism and respiratory system, phonetics, tonal placement, vowel standardization, and articulation are applied to dramatic texts.

Th 5342. Classical Text for Actors. (3 cr; QP–MFA or #; SP–MFA or #; A-F only)
Metrical and rhetorical techniques used in the dramatic texts of Shakespeare and Shaw as well as textual performance styles from Elizabethan to contemporary. Discussion, presentation, oral reports, and performances.

Th 5500. Theatre Design Practicum. (1-3 cr; QP–#; SP–3515, A, #)
Individual projects in production of approved plays as a designer of scenery/properties, costumes, lighting, or sound. (See 5100 for other creative practicums.)

Th 5510. Drawing, Rendering, and Painting for the Theatre Designer I. (3 cr; QP–3513 or 3515 or grad; SP–3515 or grad or #)
Development of skills necessary for presentation of theatre scene/costume designs. Materials, layout, and techniques in scene painting. Basic drawing/graphic skills.

Th 5515. Design Composition and Collaboration. (3 cr; QP–Grad or 3513, 3711; SP–Grad or 3515, 3711; #)
Classical composition of art and its application to stage design and directing through the collaborative process.

Th 5520. Scene Design. (3 cr [max 9 cr]; QP–3513 or grad or #; SP–3515 or grad or #)
Conceiving/communicating design ideas in both two-dimensional sketches and three-dimensional models for theatre and allied venues. Drafting.

Th 5530. Costume Design. (3 cr [max 9 cr]; QP–3515 or grad or #; SP–3515 or grad or #)
Theory and process of costume design for theatrical productions (e.g., dance, opera, film) through hypothetical productions.

Th 5540. Lighting Design for the Theatre. (3 cr [max 9 cr]; QP–3515 or grad or #; SP–3515 or grad or #)
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.

Th 5545. Stage Lighting Technology. (3 cr; QP–3515 or grad or #; SP–3515 or grad or #)
The lighting technician’s skills and crafts: equipment, techniques, control operation, wiring, and maintenance.

Th 5550. Sound Design for Performance. (3 cr [max 9 cr]; QP–5564 or #; SP–5555 or #)
Audio technology and psychology and their impact on an audience in a performance situation. Communication, design process, psychoacoustics, and script analysis.

Th 5555. Audio Technology. (3 cr; QP–5564 or SP–Th major or #)

Th 5557. Properties/Scenery Technology. (1-3 cr [max 15 cr]; QP–3513 or grad or #; SP–3515 or grad or #)
Management, sketching, mask-making, furniture construction, stage mechanics, soft properties, faux finishes. Topics specified in Class Schedule.

Th 5558. Costume Technology. (1-3 cr [max 15 cr]; QP–3515 or grad or #; SP–3515 or grad or #)
Fabric enhancement/techniques, masks, wig-making, millinery, makeup prosthetics, pattern drafting, and draping. Topics specified in Class Schedule.

Th 5590. Theatre Technology Practicum. (1-3 cr [max 15 cr]; QP–#; SP–3515 or #; 4 cr for undergrads)
Individual creative project in technology/craft area of theatre. Practical work in costume, lighting, makeup, props, scenery, sound, or theatre management.

Th 5711. Advanced Stage Direction. (3 cr; QP–3711 or grad or #; SP–3711 or grad or #)

Th 5715. Actor-Director Collaboration. (3 cr; QP–3233, 3711 or SP–Grad or 3232, 3711)
Applying advanced acting and directing technique to an artistic, collaborative process that promotes flexibility and creativity. Actors and directors are exposed to a challenging range of roles, styles, and scenes.

Th 5716. Stage Management for the Theatre. (4 cr; QP–[1101, 1504, 1321] or SP–[1101, 1321, soph] or grad or #)
Theories, practicalities, and techniques for rehearsal/production. Organizing/managing various types of performance venues.

Th 5718. Principles of Theatre Management. (3 cr)
Nonprofit theatre structure: concept, mission; organization; financial, marketing, fund-raising, and grant-writing strategies. Discussion/guest professionals from Twin Cities’ arts/funding communities.

Th 5753. Text Analysis for Drama. (3 cr; QP–3711 or grad; SP–3711 or grad)
Tools for intensive textual analysis for advanced designers/directors. Traditional, Aristotelian analysis and contemporary approaches covered through theories/ writings of Bertolt Brecht and Howard Barker.

Th 5760. Advanced Stage Management. (2-3 cr; QP–3716, SP–3716 or 5715, #; 4 cr for undergrads)
Practical experience in stage management for specific productions of the University Theatre with emphasis on rehearsal and performance.

Th 5780. Advanced Topics in Theatre Management. (2-4 cr [max 8 cr]; QP–5718; SP–5718)
Study and apply theatre management theories and techniques learned in 5718. Marketing/audience development, fundraising and grant writing strategies, and financial management of a nonprofit theatre organization.

Th 5950. Topics in Theatre. (1-4 cr [max 20 cr]; QP–Varies by topic; SP–Varies by topic)
Topics specified in Class Schedule.

Th 5993. Directed Study. (1-3 cr; QP–#; A, L; SP–#; A, L)
Directed study in translation and interpretation.

Toxicology (Txcl)

Graduate School
Txcl 5011. Principles of Toxicology. (2 cr; SP–Grad txcl major or #; A-F)
Introduction to fundamentals of poisoning in individuals and the environment, assessment of potential health hazards, and application of toxicology in various professional careers.

University College (UC)

College of Continuing Education
UC 3075. Directed Study. (1-15 cr; SP–#)
Allows student to complete a PIL course for which an incomplete was received. Also allows access to academic advising.

UC 3121. Degree Planning. (8 cr; SP–PIL student; A–S; N–only)
Students develop individualized curricular plans for their baccalaureate degrees.

UC 3122. Degree Planning. (4 cr; SP–PIL, A–S; N–only)
Degree planning.

UC 3251. Individualized Study. (4 cr; SP–Admitted to Program for Individualized Learning; S–N only)
Students develop a project proposal, identify resources, conduct research, and complete a project (e.g., paper, performance, Web site). Narrative evaluation from the project adviser/evaluator required.

Translation And Interpreting (TrIn)

Institute of Linguistics and Asian and Slavic Languages and Literatures
College of Liberal Arts

TrIn 3001. Introduction to Translation. (3 cr; QP–Bilingual proficiency in English and the second language of instruction; SP–Bilingual proficiency in English and the second language of instruction)
Theory and supervised practice in translation; examination of the process of re-expressing meaning in a second language. Translation primarily of English language texts concerning public health and safety, legal and voting rights, regulations and procedures, etc., intended for the general public.

TrIn 3101. Introduction to Interpreting. (3 cr; QP–SP–3001 recommended; high level of proficiency in spoken English and another language; SP–3001 recommended, high level of proficiency in spoken English and another language)
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.

TrIn 3102. Consecutive Interpreting. (3 cr; QP–3011, high level of proficiency in spoken English and another language) as demonstrated by application; SP–3011, high level of proficiency in spoken English and another language) as demonstrated by application) Practical 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/video taping. Subject languages (e.g., Spanish, Russian, Somali) specified for each section.

TrIn 3103. Interpreting II. (3 cr; QP–3102; SP–3102)
Practical and theoretical course aimed at achieving professional levels of proficiency with emphasis on interpreting professional/client dialogues. Analysis of the interpreting process, consecutive and simultaneous interpreting, intercultural issues, and situational ethics. Subject language specified in Class Schedule.

TrIn 5900. Topics in Translation and Interpreting. (3 cr; QP–# or SP–#)
Topics specified in Class Schedule.

TrIn 5993. Directed Study. (1-3 cr; QP–#; A, L; SP–#; A, L)
Directed study in translation and interpretation.
Urban Studies (UrbS)

Department of Geography
College of Liberal Arts

UrbS 1001W. Introduction to Urban Studies: The Complexity of Metropolitan Life. (3 cr; SP–§ 3001; A-F only)
Introduction to the field of Urban Studies and the subject of cities. Course is broadly interdisciplinary, ranging across spatial, historical, economic, political, and design perspectives, among many others. For majors and interested others.

UrbS 3001W. Introduction to Urban Studies: The Complexity of Metropolitan Life. (3 cr; SP–§ 1001; A-F only)
Introduction to the field of Urban Studies and to the subject of cities. Course is broadly interdisciplinary, ranging across spatial, historical, economic, political, and design perspectives, among many others. For majors and interested others.

UrbS 3201. Urban Studies Colloquium. (1 cr; SP–A; A-F only)
Urban/metropolitan issues. Topics vary to reflect current concerns. In-depth reading, intensive group discussion.

UrbS 3202. Urban Studies Colloquium. (1 cr; SP–A; A-F only)
Urban/metropolitan issues. Topics vary to reflect current concerns. In-depth reading, intensive group discussion.

UrbS 3301W. American Cities As Settings for Cultural Diversity. (3 cr)
Explores cultural diversity in American cities, considering patterns and reasons for racial and class segregation and interaction. Its foci are the problems, conflicts, and successes of cultural diversity from a multidisciplinary perspective.

UrbS 3500. Urban Studies Workshop. (3 cr [max 6 cr]; SP–1001 or 3001 or equivalent; A-F only)
Links academic learning to actual urban problems/issues. Focus on specific topic using local community as laboratory. Field work, contact with local institutions/Agencies.

UrbS 3751. Understanding the Urban Environment. (3 cr; A-F only)
Examines 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 3900. Urban Studies Internship Seminar. (2 cr [max 4 cr]; SP–Internship placement, A, A-F only)
Weekly seminar integrates internship experience with academic program.

UrbS 3955W. Senior Paper Seminar. (1 cr; SP–A; UrbS 3751; A-F only)
Methods/resources for research. Substantial writing.

UrbS 3993. Urban Studies Directed Study. (2-3 cr; max 6 cr; SP–Urban majors, A, A-F only)
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.

UrbS 5101. The City and the Metropolis: An Exploration. (3-4 cr; SP–Grad or advanced UrbS undergrad with #)
Advanced interdisciplinary examination of complex metropolitan environments using a grounded experiential approach. Examine the topic from historical, spatial, social, economic, political, policy and design perspectives. Day-long or weekend-long field trips are expected.

Urdu (Urdu)

Institute of Linguistics and Asian and Slavic Languages and Literature

College of Liberal Arts

Urdu 1001. Introduction to Conversational Urdu. (3 cr)

Urdu 1101. Beginning Urdu. (4 cr)
Basic listening, speaking, reading, and writing skills. Emphasized development of communicative competence.

Urdu 1102. Beginning Urdu. (4 cr; SP–1101 or #)
Basic listening, speaking, reading, and writing skills. Emphasizes development of communicative competence.

Urdu 3131. Intermediate Urdu. (4 cr; SP–1102 or #)
Development of reading, writing, speaking, and listening skills. Grammar review, basic compositions, oral presentations.

Urdu 3132. Intermediate Urdu. (4 cr; SP–3131 or #)
Development of reading, writing, speaking, and listening skills. Grammar review, basic compositions, oral presentations.

Veterinary Pathobiology (VPB)

Department of Veterinary Pathobiology
College of Veterinary Medicine

VPB 2022. General Microbiology. (2 cr; SP–3 cr biol)
Fundamental principles of microbiology; bacterial metabolism, growth, and genetics; biology of viruses and fungi; control of microorganisms; host-microbe interactions; microorganisms and disease; applied microbiology. Intended primarily for non-microbiology majors.

VPB 2032. General Microbiology with Laboratory. (4 cr; SP–3 cr biol)
Fundamental principals of microbiology; bacterial metabolism; growth and genetics; biology of viruses and fungi; control of microorganisms; host-microbe interactions; microorganisms and disease; applied microbiology. Intended primarily for non-microbiology majors.

VPB 5601. Veterinary Parasitology. (4 cr)

Water Resources Science (WRS)

Graduate School

WRS 5001. Introduction to Field Research in Water Resources. (2 cr; SP–Grad WRS major or #)
Introduction to field research techniques and opportunities during two-week summer excursion to regional sites. Data acquisition in large/small lakes, streams, and wetlands for biota and chemical/physical water quality; surface and groundwater hydrologic measurements and sampling.

WRS 5101. Water Resources: Individuals and Institutions. (3 cr; SP–Grad student or #)
Control of water resources by natural system functions, user actions, and influence of social and political institutions. How these controls vary in space and time; complexities of each control and feedbacks among them.

Women’s Studies (WoSt)

Department of Women’s Studies
College of Liberal Arts

WoSt 1001W. Introduction to Women’s Studies. (3-4 cr)
U.S. multi-cross-cultural studies of contemporary social, cultural, and personal conditions of women’s lives. Includes honors recitation.

WoSt 1002W. Introduction to Gender Studies. (3-4 cr)
Historical, cultural, psychological, and social dimensions of analyzing gender. How various groups (based on race, class, sexual orientation, region) have different understandings of gender ideals/deviances.

WoSt 1003W. Women and World Literatures. (3-4 cr)
Introduction to concepts in literary studies. Poems, plays, short stories, novels, essays, and letters by women from different parts of the world. Thematic focus on the lives, experiences, and literary expression of women, including exploration of basic concepts of women’s studies.

WoSt 1902. Freshman Seminar. (3 cr; QP–Fr or no more than 36 cr; SP–Fr or no more than 36 cr; A-F only)
Topics/descriptions vary. See Class Schedule, Course Guide.

WoSt 3001W. Sexuality Studies. (3 cr)
Interdisciplinary survey of lesbian, gay, bisexual, and transgender studies. Includes honors recitation.

WoSt 3002. U.S. Ethnic Studies of Women, Race, and Class. (3-4 cr)
Comparative study of women/gender, race, class, and sexuality in two or more U.S. ethnic cultures. Includes honors recitation.

WoSt 3002H. Honors: U.S. Ethnic Studies of Women, Race, and Class. (3-4 cr; SP–§ 3002 honors)
Comparative study of women/gender, race, class, and sexuality in two or more U.S. ethnic cultures. Includes honors recitation.
WoSt 3003V. Honors: Women and World Cultures. (3-4 cr; SP–§3003V; honors) 
Summarizes 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, autobiographies). Includes honors recitation.

WoSt 3003W. Women and World Cultures. (3-4 cr) 
Summarizes 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, autobiographies). Includes honors recitation.

WoSt 3004V. Honors: Point/Counterpoint: Contemporary Feminist Debates. (3-4 cr; SP–§3004V; honors) 

WoSt 3004W. Point/Counterpoint: Contemporary Feminist Debates. (3-4 cr) 

WoSt 3051. Honors: Introduction to Sexuality Studies. (4 cr; SP–§3001; A-F only) 
Interdisciplinary survey of lesbian, gay, bisexual, and transgender studies. Recitation.

WoSt 3052. Honors: Introduction to U.S. Ethnic Studies of Women, Race, and Class. (4 cr; SP–§3002; A-F only) 
Comparative study of women and gender, race, class, and sexuality. Compares two or more U.S. ethnic cultures. Recitation.

WoSt 3053. Honors: Introduction to Women and World Cultures. (4 cr; SP–§3003; A-F only) 
Focuses on similarities/differences in women’s experiences throughout world from cross-cultural/historical perspective. Uses range of reading materials and media (e.g., feminist scholarship, fiction, film, news media, oral history, autobiographies). Recitation.

WoSt 3054. Honors: Point/Counterpoint—Introduction to Contemporary Feminist Debates. (4 cr; SP–§3004; A-F only) 
In-depth study of contemporary debates/perspectives on several issues of concern to many women. Issues may include abortion, affirmative action, marriage rights, welfare rights, sex education, children’s rights, date rape. Recitation.

WoSt 3102V. Honors: Feminist Thought and Theory. (3-4 cr; SP–§3102; §3102W) 

WoSt 3102W. Feminist Thought and Theory. (3-4 cr) 

WoSt 3190. Topics: Methods of Inquiry. (3 cr [max 12 cr]) 
Topics specified in Class Schedule.

WoSt 3201. Sociology of Gender. (3 cr; SP–1001 or 109) 

WoSt 3202. Biology of Women. (4 cr) 

WoSt 3202H. Honors: Biology of Women. (4 cr) 

WoSt 3203W. Biology, Race, and Gender. (3 cr; QP–3202; SP–3202) 
Ways in which modern biology has been a site of conflict about race and gender. Short survey of the race and gender demographics of scientific professions.

WoSt 3204. Women’s Psychologies: Feminist and Multicultural Perspectives. (3 cr) 
Examines the trends of gender, ethnicity, class, sexual identity, and age as factors that influence women’s diverse psychologies.

WoSt 3205. A Sense of Identity. (3 cr) 
Exploration of social and psychological factors that affect a woman’s continuously developing sense of identity. Emphasis is on assertion and communication skills development.

WoSt 3206. Women and Madness in History and Literature. (3 cr; SP–§5203; jr) 
The representation of madness and how it intersects with gender as well as class, race, sexual orientation, and nationality.

WoSt 3290. Topics: Biology, Psychology, and Social Perspectives. (3 cr) 
Topics specified in Class Schedule.

WoSt 3301W. Women and Literature. (3 cr; QP–Introduction course; SP–Introduction course) 
Literature in various genres (e.g., novels, short stories, poems, essays, plays, autobiographies) written by women of various racial and ethnic backgrounds.

WoSt 3302. Women and the Arts. (3 cr) 
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.

WoSt 3303W. U.S. Women’s Color Literatures. (3 cr) 
Interpretation and analysis of poetry, fiction, and drama of U.S. women minority writers. Relationship of writer’s history, ethnicity, race, class, and gender to her writings.

WoSt 3305. Language and Gender. (3 cr) 
Gender and communication with an emphasis on interdisciplinary theory. Role of communication in creating, maintaining, reinforcing, and sometimes changing gender relations in society.

WoSt 3306. Women in U.S. Popular Culture. (3 cr) 
Contemporary. U.S. feminism as a political and intellectual movement and the ways in which that movement has been represented in popular culture.

WoSt 3307. Gender and Film Studies. (3 cr) 
Construction of different notions of gender in film, social uses of these portrayals. Lectures on film criticism, film viewings, class discussions.

WoSt 3308W. Women’s Contemporary Fiction. (3 cr) 
Theories and features of style and content related to changes in women’s roles in novels and short stories by English-language women writers of the late 20th century. Significance of race, sexual orientation, class, and age in the conditions of women’s lives and their portrayal in literature.

WoSt 3390. Topics: Literature, Film, and the Arts. (3 cr) 
Topics specified in Class Schedule.

WoSt 3401W. Gender and Geopolitics. (3 cr) 
Gender theory and practice of geopolitics. Critique of the gendered nature of conventional international relations theory.

WoSt 3403W. Jewish Women in the United States. (3 cr) 
Twentieth century American Jewish women—historically, sociologically, religiously, and culturally; key developments over the century.

WoSt 3404. International Lesbian Studies. (3 cr; SP–1001 or 1002 or 3001 or #) 
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.

WoSt 3405. Latin American Women’s Lives. (3 cr; SP–1001, 1002 or 1003 or LAS 3131 or #) 
An interdisciplinary approach to understanding women’s lives in Latin America. Use of ethnography, history, poetry, fiction, and “testimonio” to understand the conditions of women’s lives in Latin America.

WoSt 3406. Women and Work. (3 cr; SP–1001 or 1002 or #) 
Historical changes in women’s labor force participation in the United States from 1890 to present. Systematic and institutional processes that maintain and reproduce sex segregation. Women’s efforts to change their work situations.

WoSt 3407. Women in Early and Victorian America, 1600-1890. (3 cr) 
Varied experiences of women in American history from European settlement in North America to the end of the 19th century.

WoSt 3408W. Women in Modern America. (3 cr; SP–3407) 
History of women in the United States from 1890 to the present. Women’s changing roles in politics, in the labor force, in the family, and in the popular culture. Themes include work, family, sexuality, gender ideologies, women’s right struggles, and the different experiences of women based on race, class, religion, and region.

WoSt 3409W. Asian American Women’s Cultural Studies. (3 cr) 
Diversity of cultures designated “Asian American.” Understanding women’s lives in historical, cultural, economic, and racial contexts.

WoSt 3410. La Chicana. (3 cr) 
Focus on Chicanas or politically defined women of the Mexican-American community. Method is interdisciplinary emphasizing the importance of historical context and cultural process to any discussion of the Chicana experience.

WoSt 3411. Las Mujeres. (3 cr) 
Focus on Chicanas, women of the Mexican-American community. Exploration of racial, economic, political, and gender issues of concern to all Mexican Americans and diverse Latino cultures.

WoSt 3490. Topics: Comparative and Global Studies. (3 cr) 
Topics specified in Class Schedule.

WoSt 3501. Community, Service, and Self: Dynamics of Gender, Race, and Class. (3 cr; SP–WP 3890 or WoSt minor or 6 cr WoSt or #) 
Combines theoretical exploration of models of community service with hands-on involvement in local communities.

WoSt 3502. Community, Service, and Self: Dynamics of Gender, Race, and Class. (3 cr; SP–3501) 
Year-long, six-credit offering (with WoSt 3501) that combines a theoretical exploration of models of community service with hands-on involvement in local communities.

WoSt 3590. Topics: Civic and Community Studies. (3 cr) 
Topics specified in Class Schedule.

WoSt 3880H. Honors Directed Instruction. (1-8 cr [max 12 cr]; SP–§3880) 
Directed instruction.

WoSt 3889H. Topics: Honors Seminar. (1-8 cr [max 12 cr]; SP–§3890; Honors) 
Topics vary. Topics that students would like faculty to develop into a course or topics closely related to faculty research/scholarship or contemporary issues.

WoSt 3893H. Honors Directed Study. (1-8 cr [max 12 cr]) 
Honors directed study.

WoSt 3894H. Honors Directed Research. (1-8 cr [max 12 cr]) 
Honors directed research.

WoSt 3895. Directed Instruction. (1-12 cr [max 12 cr]; SP–§3895) 
Directed instruction.

WoSt 3895. Directed Instruction. (1-12 cr [max 12 cr]; SP–§3895) 
Directed instruction.
WoSt 3994. Directed Research. (1-12 cr [max 12 cr]; SP–A, J)

WoSt 4102. Women, Gender, and Science. (3 cr; SP–1001 or 3102 or #) 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.

WoSt 4103. Honors: International Feminist Theory. (3 cr; SP–5107 or WoSt or grad or #) Western/nonwestern feminist theories in conversation. Historical, cultural, and political context. Relation of theory to activism.

WoSt 4108W. Senior Seminar: Writing. (2 cr; SP–4107, WoSt sr, $4993 for 1 cr) Writing seminar for the senior project. The writing process is studied and the project is completed under the supervision of the instructor and the faculty adviser.

WoSt 4109. Field Learning. (2 cr; SP–4107, $4993 for 1 cr) For majors working on senior projects that involve an internship or learning practicum. Majors may substitute this course for WoSt 4108 (with simultaneous enrollment in WoSt 4993) to finish their senior project.

WoSt 4190. Topics: Methods of Inquiry. (3 cr; SP–Sr or grad or #) Topics specified in Class Schedule.

WoSt 4201. The Older Woman: A Feminist Perspective. (3 cr; SP–12 cr in WoSt or substantial work in psych or soc sci) Myths and realities surrounding conceptualizations of older women in public, private, personal, social, sexual, professional, and community interactions.

WoSt 4290. Topics: Biology, Psychology, and Social Perspectives. (3 cr; SP–Sr or grad or #) Topics specified in Class Schedule.

WoSt 4301W. Women Writers of Africa and Latin America. (3 cr; SP–8 cr in WoSt or Latin American or African studies or #) Contemporary women writers from Sub-Saharan Africa and Latin America, including the Spanish-speaking Caribbean. Fiction, poems, plays, and essays in light of gender relations, feminist theory, and the history of colonialism.

WoSt 4302H. Honors: Women's Personal Narratives. (3 cr; SP–9 or Sr or grad student or #; SP–3301 or 3302 or 3 cr literary studies or 3 cr AfrAm or #) Literary autobiography, journals, travel narratives, essays, slave narratives, and ethnographies used to consider content of and methodology, theoretical, and aesthetic issues in constructing/producing women's experience.

WoSt 4390. Topics: Literature, Film, and the Arts. (3 cr; SP–Sr or grad or #) Topics specified in Class Schedule.

WoSt 4401. Chicana/Latina Cultural Studies. (3 cr; SP–3002 or 3410 or 3411 or 3 cr Chicano studies or #) Diversity of cultures called “Hispanic”; women in these cultures. Chicanas/Latinas living in United States or migrating from their home nations to United States.

WoSt 4402. History of Western Feminism. (3 cr) Survey of the main currents in the history of Western feminist thought, politics, and social movements from the 1770s to the present.

WoSt 4403. Lesbian/Queer Cultural Production. (3 cr; SP–3001) Lesbianism and lesbian identities as products of cultural practice, regulation, and meanings that are historically specific and historically changing.

WoSt 4490. Topics: Comparative and Global Studies. (3 cr; SP–Sr or grad or #) Topics specified in Class Schedule.

WoSt 4502. Women and Public Policy. (3 cr; SP–[J–or Sr]WoSt major or 9 cr [WoSt or pol sci or sociology] or #) Public policy issues, processes, and histories as these affect women-, children-, and gender-related issues.

WoSt 4504. Women and the Legislative Process. (3 cr; SP–J–or Sr or grad student or #) Current/historical roles, impacts, and interactions of women as legislators, constituents, and professional or citizen lobbyists in state/national legislatures. Unique contributions, issues, challenges of women. Ways in which gender is operative in legislative process.

WoSt 4505. Honors: Legislative Internship. (3 cr; SP–4504 or equiv or grad student or #) Discussion group and learning community for students working as interns for a Minnesota legislator during the year’s legislative session.

WoSt 4590. Topics: Civic and Community Studies. (3 cr; SP–J–or Sr or grad) Topics specified in Class Schedule.

WoSt 4900. Women's Studies Seminar. (3 cr; max 12 cr; WoSt–major, junior or senior standing, or instructor's permission; A-F only) Includes a component on research methods/writing. Capstone experience. Culminates in a 20-25 page paper.

WoSt 4980. Directed Instruction. (1-8 cr [max 12 cr])

WoSt 4993. Directed Study. (1-8 cr [max 12 cr])

WoSt 5101. Feminist Approaches to Ethnography. (3 cr) Preparation for feminist ethnographic research in the social sciences. Using recent works by feminist ethnographers, focus is on the methods, politics, and ethics, as well as gender, race, class, and cross-cultural issues pertaining to fieldwork.

WoSt 5102. Feminist Approaches to History. (3 cr; SP–8 cr WoSt or grad or #) Analysis and practice of feminist history. Theories, methods, and sources that address the interrelationship of gender, race, class, and sexuality.

WoSt 5103. Feminist Pedagogies. (3 cr; SP–Grad or #) Theory and practice of feminist pedagogies by comparing and evaluating various multicultural feminist theories of education/teaching and the application of specific theories, techniques, and teaching strategies.

WoSt 5105W. Gendered Rhetoric of Science and Technology. (3 cr; SP–8 cr WoSt or grad or #) How cultural gender roles are affected by science and technology as well as influence scientific and technological thinking and communication strategies.

WoSt 5106. The Cultural Construction of Sex, Gender, and Sexuality. (3 cr; SP–Feminist studies grad or 12 WoSt or #) Investigation of Euro-American concepts of sex, gender, sexuality in representative texts and images from the 17th century to the present. Critical and source materials from literary and cultural studies, history, biology, anthropology, psychology, and sociology.

WoSt 5107. Gender, Culture, and Science. (3 cr) Critical study of some of the major papers concerning the relations of gender and scientific inquiry produced in the past 20 years.

WoSt 5190. Topics: Methods of Inquiry. (3 cr) Topics specified in Class Schedule.

WoSt 5201. Global Processes and the Politics of Sexuality. (3 cr; SP–12 cr WoSt or feminist studies grad student or #) Comparative examination of the social construction of sexuality. Formal/informal norms/regulations, categories of deviance, representation of sex in the media/arts, role of sexuality in relation to agency/subjectivity.

WoSt 5202. Feminist Therapies. (3 cr) Feminist and multicultural perspectives regarding therapy and other helping forms for women, including philosophy of feminist therapy; feminist ethics in therapy; gender, sexual identity, race and class in therapy, and related topics.

WoSt 5203. Women and Madness in History and Literature. (3 cr; SP–3206; J–or Sr WoSt or #) The representation of madness and how it intersects with gender as well as class, race, sexual orientation, and nationality.

WoSt 5290. Topics: Biology, Psychology, and Social Perspectives. (3 cr) Topics specified in Class Schedule.

WoSt 5300. Communication and Gender. (3 cr; SP–One women's studies course or #A-F only) How gender affects verbal communication. Development of analytical skills through readings, exercises, research that raise awareness of the power and influence of language and the influence of gender prescriptions.

WoSt 5390. Topics: Literature, Film, and Other Arts. (3 cr) Topics specified in Class Schedule.

WoSt 5403. Chicana/Latina Feminisms. (3 cr; SP–8 cr WoSt and/or Chic or grad or #) The historical and social development of Chicana and Latina feminisms in general and their various specific types.

WoSt 5404. Working Class Women's Cultures. (3 cr; SP–12 cr WoSt or #) Myths and realities surrounding working class women and their cultures. Use sociological and literary material in an effort to learn about working class women and to hear their own voices.

WoSt 5405. Chicana/Women and Work. (3 cr; SP– #) Chicana, their various relationships to family/community. Local, national, and global work forces. Questions/issues related to growing integration of world’s systems of production.

WoSt 5490. Topics: Comparative and Global Studies. (3 cr [max 12 cr]) Topics specified in Class Schedule.

WoSt 5501. Women and the Law. (3 cr; SP–9 cr [WoSt or pre-law grad] or #) Legal system as it relates to women: historical legal approach to issues related to constitutional rights of women.

WoSt 5505. Women and Indigenous Land Struggles. (3 cr; SP–8 cr WoSt and/or Chic and/or Amin or #) Representative land struggles by indigenous women from a critical race and gender perspective.

WoSt 5590. Topics: Civic and Community Studies. (3 cr [max 12 cr]) Topics specified in Class Schedule.

WoSt 5993. Directed Study. (1-12 cr [max 12 cr])

WoSt 5994. Directed Instruction. (1-12 cr [max 36 cr])

WoSt 5995. Directed Research. (1-8 cr [max 36 cr])
Course Descriptions

WPS 3312. Building Materials Estimating. (1 cr; QP–Sr; SP–3322)
Modern methods of estimating quantity, grade, and specifications of building materials for light frame construction.

WPS 3332. Introduction to Residential Construction. (2 cr)
Introduction to housing and construction terminology, building materials and components, and the design, construction, and sales process including basic building science concepts, blueprint reading, computer-aided design, and construction site logistics.

WPS 3393. Directed Study Experience. (1-3 cr; max 3 cr; QP–Sr; SP– Sr)
Opportunity to pursue experiences not available through independent study or extra credit. In consultation with an adviser, students develop a prospectus and complete progress reports and a final report on the project.

WPS 3396. Industrial Internship (Industrial Assignment). (1 cr; QP– WPS cooperative ed student; SP– WPS cooperative ed student; A-F only)
Industrial work assignment in forest products cooperative education program. Evaluation based on formal report written by student at end of each semester of work assignment.

WPS 4200H. Honor Seminar. (1 cr; QP– WPS upper div honors; SP– WPS upper div honors; A-F only)
Current topics presented by faculty/students. Lectures/discussion.

WPS 4201. Wood Industry Tours. (1 cr; SP–1301 or Sr or Jr or #)
Five-day tour consisting of visits to at least 12 manufacturers representing broad cross section of wood-using industries.

WPS 4301. Statics and Engineering Mechanics. (3 cr; QP–1301 or Sr or SP–1301 or #)
Basic mechanics and strength of materials as applied to wood products.

WPS 4302. Wood Chemistry. (3 cr; QP– 300 organic chem course; SP– 200 organic chem course; A-F only)
Occurrence, biosynthesis, structure, and chemistry of the chief biopolymers and related lower molecular weight components in woody tissues; chemical and biochemical principles of pulping wood and bleaching pulp.

WPS 4303. Wood Deterioration and Preservation. (3 cr; QP–1301 or Sr or SP–1301 or #)
Deterioration of wood and wood products by bacteria, fungi, insects, marine organisms, fire, and weathering; methods of preservation and preservatives used. Lecture and/or laboratory.

WPS 4304. Wood Drying. (2 cr; QP–5300; SP–4303)
Materials, equipment, processing, technical considerations inherent in industrial drying of wood products. Lectures, lab exercises, plant visits.

WPS 4305W. Pulp and Paper Technology. (3 cr; QP–1300 or Sr or SP–1300 or Sr or SP–4305)

WPS 4306. Analysis of Production Systems. (2 cr; QP–1301 or Sr or 3300 recommended; SP–1301 or Sr or 3301 recommended)

WPS 4309. Wood-Fluid Relationships. (2 cr; QP–1301; SP–1301 or Sr)
Moisture in wood and its relationship to density and specific gravity, shrinking and swelling, electrical properties, strength properties, thermocohereency, absorption isotherms, dimensional stabilization, permeability and diffusion.

WPS 4313. Pulp and Paper Unit Operations. (3 cr; QP–5305, 5312, 5353; CE 3400, ME 3301, ME 5342 or ChEn 5102 or SP–5305; ChEn 4001, ME 3321, ME 3322, Math 2263 or Sr)
Application of the principles of momentum, heat, and mass transfer to unit operations in the pulp and paper industry; fluid transport, filtration, sheet formation, sedimentation, drainage, pressing, heat exchange, evaporation, washing, bleaching, humidification and drying, chemical and energy recovery. Computer simulation of multiphase-stage systems.

WPS 4314. Papermaking Processes and Process Engineering Laboratory. (3 cr; QP–5305, 5310, 5311, 5312, 5315, 5359; CE 3400, ME 3301, ME 5342 or SP–5305, 5431, ChEn 4001, ME 3321, ME 3322)
Theory and practice of the design and operation of paper machines and associated unit processes in product quality and converting equipment. Experiments that illustrate and apply the principles of momentum, heat, and mass transfer. Operation and performance optimization of pilot-plant paper machine. Process engineering studies of industrial production systems.

WPS 4318. Pulp and Paper Process Simulation and Control. (3 cr; QP–5305, 5310, 5311, 5312, 5315, 5359; 5321, CE 3400, ME 3301, ME 5342 or SP–5WPS 3305, ChEn 4001, ME 3321, ME 3322, Math 2263)
Pulp science and engineering senior and graduate students. Concepts, methodology and tools in process simulation, process dynamics and automatic process control.

WPS 4321. Material Science of Paper. (3 cr; QP–5305, 5310, 5311, 5312, 5315, 5359; CE 3400, ME 3301, ME 5342 or SP–5305, 3301, ChEn 4001, ME 3301, ME 3321)
Advances in understanding response of fibers subjected to the fibre orientation of papermaking processes: mechanisms acting in stock preparation, refining, wet-end operations, web consolidation, and paper converting equipment. Experiments that illustrate and apply the principles of momentum, heat, and mass transfer. Exposure and training for paper science and engineering seniors in solving process engineering related problems and optimization and design of pulp and paper products. Applications of engineering principles in pulp and paper process engineering. Process engineering studies of industrial production systems.

WPS 4401W. Forest Products Marketing. (4 cr; QP–1301; SP–1301; A-F only)
Examine the marketing of forest products including the selling function. Focus on companies that distribute wood-based construction materials. Lecture, discussion, in-class role playing, and extensive use of case studies as well as guest presenters and field trips to local companies.

WPS 4405. Paper in Today's World. (2 cr; QP–5305 (UC/CEE only); SP–4305 (UC only))
Primarily for elementary and secondary school teachers although other interested students may enroll. Enables teachers to prepare a teaching unit on pulp and paper for use in an elementary, junior high, or senior high school science class. Not open to WPS majors.

WPS 4406. Understanding Wood. (1 cr; QP–UC/C EE only; SP–UC only)
For woodworking professionals and serious craftspersons. Cellular structure of wood, identification of hardwoods and softwoods, interaction of water and wood. No prior technical training in wood properties is needed, although general experience with woodworking is helpful.

WPS 4411. Application and Performance of Wood-based Composites in Service. (2 cr; QP–1301 or 5410 or SP–1301 or 4406 or A-F only)
Physical/mechanical properties of composites. Proper composite applications and applications. Intended primarily for forest products marketing-manufacturing professionals, architects, and commercial/residential design engineers.

WPS 4491. Senior Topics (Independent Study). (1-4 cr; QP–Sr; Sp– Sr; A-F only)
Independent study in an area of interest to an undergraduate majoring in one of the fields within the College of Natural Resources.
Course Descriptions

WPS 4801H. Honors Research. (2 cr; QP–WPS upper div. honors, # SP–WPS upper div. honors, # A-F only) First semester of independent research project supervised by faculty member.


WPS 5402. Business Markets in the Forest Products Industry. (3 cr; max 3 cr; A-F only) How forest products companies sell to other businesses, how this differs from traditional consumer process. Emphasizes business marketing communications, sales force management, organizational buying, partnering, e-commerce, globalization of business markets. Case studies, discussion, daily readings from course text, academic/industry publications.

Work, Community, and Family Education (WCFE)

Department of Work, Community, and Family Education

College of Education and Human Development

WCFE 5001W. Introduction to Technology and Public Ethics. (3 cr) Nature of thinking/learning in everyday life contexts of family, work, community. Theory/practice relevant to stimulating/supporting thinking/learning in for these contexts.

WCFE 5011W. Technology and Public Ethics. (3 cr; A-F only) Nature of technology. Values, ethical issues related to technology. Technology and transformation of workplace, family, community life.

WCFE 5002. Thinking, Learning, and Teaching in Work, Community, and Family. (3 cr; A-F only) Nature of thinking/learning in contexts of family, work, community. Theory/practice relevant to stimulating/supporting thinking/learning in for these contexts.


WCFE 5012. Information Resources in Education. (3 cr; S-N only) Sources of knowledge and search strategies for accessing library, electronic, institutional, and informal resources of interest to educators.

WCFE 5101. Introduction to Leadership and Administration of WCFE. (3 cr) Basic concepts of finance, public relations, communications, legal aspects, leadership, personnel policies and management, program planning and development, evaluation, and interinstitutional collaboration of work, community, and family education programs in school-based settings.

WCFE 5102. Leadership in WCFE. (2 cr) An introduction to the concepts of leadership, leadership roles and responsibilities, and application to work, community, and family education settings.

WCFE 5121. Principles of Supervisory Management. (3 cr) Introduction to the principles of supervision in education, business, industry, government, and service organizations.

WCFE 5125. Critical Pedagogy. (3 cr; S-N only) 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.

WCFE 5131. Planning WCFE. (3 cr) Examination of educational planning and evaluation of work, community, and family education in formal and nonformal settings.

WCFE 5141. Evaluation of WCFE. (3 cr) Designing and conducting project, program, and systems evaluations in work, community, and family education contexts and settings.

WCFE 5201. Family and Work Relationships. (3 cr; A-F only) Examination of the interactions of work and family to prepare professionals to improve work and family relationships.

WCFE 5301. Philosophy and Practice of Vocational Education. (2 cr; A-F only) Purposes, recipients, practices, legislation and funding, socioeconomic contexts of work, community, and family education.

WCFE 5331. Coordination Techniques for Work and Community Education. (3 cr) Purposes of cooperative work and community education. Coordination of instructor coordinator; guidance, selection, placement, supervision and evaluation of students; articulation of related instruction; training supervisor identification, orientation, development, and evaluation; management of the program.

WCFE 5341. Global Program Delivery Techniques and Technology. (2 cr; A-F only) Special educational activities and teaching and communication methods and techniques for youth and adults, ranging from outreach to extension services, with an emphasis on youth and adult education programs in different global settings.

WCFE 5351. Methods for Change in Developing Countries. (3 cr; A-F only) Sociological and cultural parameters as they pertain to promoting the adoption of improved practices in rural, community, and agricultural development, including formal and informal education institutions. Project planning, implementation, and evaluation related to actual change and development situations in developing countries.

WCFE 5400. Special Topics in Youth Development Leadership. (1-4 cr; max 4 cr) An examination of important social and political topics of current interest to youth development practitioners with an emphasis on leadership implications for practice in youth agencies, congregations, schools, and other community settings. Content varies by offering.

WCFE 5411. The Everyday Lives of Youth. (3 cr; A-F only) Lived realities of body, time, space, other, and self from an existential and phenomenological perspective.

WCFE 5412. Experiential Learning: Theory and Practice. (3 cr; A-F only) Examines the theory and practices of learning by doing. Emphasis on the educator’s personal engagement in the actual process to understand the technical, motivational, and evaluative aspects of experiential learning.

WCFE 5413. Nonformal Education in Youth-Serving Organizations. (3 cr; A-F only) Examination of the language, historical influences and educational philosophies fundamental to youth development work in organizations serving youth.

WCFE 5414. Issues in Youth Development Leadership. (3 cr; A-F only) An examination of issues that drive the professional practice of community-based youth work. Participants engage experts from the family, community, school, and workplace to develop a deeper understanding of how public issues and policy affect the everyday lives of youth.

WCFE 5451. Seminar in Youth Development Leadership. (1 cr; max 4 cr; S-N only) Applies the principles of youth development, nonformal learning venues, and experiential education to the practice and policies of community-based youth work. Individual and group projects focus on applied research, community-based teaching and learning, and foundations of ethical practice. Four-course sequence.

WCFE 5496. Leadership Field Experience: Youth Development. (3 cr; S-N only) Field experience to demonstrate leadership in support of healthy youth development. Work in agency dedicated to community-based youth programming, education, public policy, and advocacy for children, youth, and families.

WCFE 5511. Education for Work. (3 cr) Examination of contextual bases underlying education for work; implications for practice.

WCFE 5521. School-to-Work Policies. (3 cr) Examination of the aims and purposes, federal and state policies, educational reform, and issues and concepts relating to school-to-work education.

WCFE 5522. School-to-Work Practices. (3 cr) Examination of learning in context; curricular integration; educational system articulation; educational partnerships; best practices in school-based, work-based, service-based learning, and connecting activities; building community support; and leadership relating to school-to-work education.

WCFE 5696. Teaching Internship: Introduction. (1 cr; SP–Admission to an init lic program; S-N only) Content in the teaching profession provided through observations of school organization and administration, seminars, relationship building with cooperating teachers, and a reflection on personal involvement as a beginning student teacher.

WCFE 5697. Teaching Internship: School and Classroom Settings. (2 cr; SP–5696 for init lic program) Part-time supervised teaching experience in a school. Seminars on managing student’s learning in the context of work, community, and family education programs in contemporary schools and on becoming a reflective educator.

WCFE 5698. Teaching Internship: Extended Practice. (3-8 cr; max 8 cr; SP–Admission to an init lic program) Teaching experience in a school system that provides programs for grades 5-12.

WCFE 5699. Teaching Internship: Extended Practice. (1 cr; SP–5698) Extended student teaching experience in a school system that provides programs for grades 5-12.

WCFE 5771. Teaching Entrepreneurship: Small Business Management. (3 cr) Methods, organization, curriculum development and modification, and implementation of educational programs for entrepreneurs.

WCFE 5801. Educating Special Populations in Work, Community, and Family Settings. (3 cr) Identifying and accommodating educational traits of students with disabilities and disadvantaging conditions in work, community, and family settings.

WCFE 5802. Interagency Collaboration for Special Populations in Work, Community, and Family Settings. (2 cr) Interagency planning issues and practices relating to special populations for educational, business, and human service organization personnel, as well as family members and advocates.


WCFE 5822. Diversity and Organizational Transformation in Work, Community, and Family Education. (2 cr) Developing models for understanding the impact of diversity on individual, organizational, and community outcomes; discussing organizational change in relation to diversity.

For definitions of course numbers, symbols, and abbreviations, see page 289.

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Course Descriptions

WCFE 5823. Program Planning and Improvement for Special Populations in Work, Community, and Family Education. (2 cr)
Concepts, issues, and practices related to the design, implementation, and evaluation of efforts focused on developing new programs or modifying existing programs for individuals with special learning needs in work, community, and family settings.

WCFE 5901. Using Research in Work, Community, and Family Education. (3 cr)
Introduction to the role of work, community, and family education research in professional practice, significant problems of practice for research, alternative modes of research, and synthesis and application of the results of research.

WCFE 5990. Special Topics in Work, Community, and Family Education. (1-4 cr; max 4 cr)
Topics vary.

WCFE 5993. Directed Study in WCFE. (1-4 cr; max 4 cr; SP–A)
Self-directed study, with faculty advice, in areas not covered by regular courses.

Youth Development and Research (YoSt)

School of Social Work
College of Human Ecology

YoSt 3001. Introduction to Youth Studies. (2 cr)
Introduction to the issues of youth and adolescents in their everyday lives. Policies, programs, and services for youth and adolescents.

Field observation of young people. Field visits to youth programs.

Introduces community, sociocultural context of “growing up,” “coming of age” as primary site for healthy youth development. Community introduced also as home to youth agencies/programs along international continuum. How community-based cultural identity, social expectations of young people frame young people’s roles in school, work, neighborhoods.

YoSt 3006. Fieldwork Seminar: Youth, Youthworker, Context, Programs, Organizations, Place. (1 cr; SP–3001, ¶3004, ¶3005, A-F only)
Beginning youth work, youth agency, program, organization, service as found in students’ youth work field experience.

YoSt 3007. Integrative Seminar: Analysis, Experience, Reflection on Youth Studies and Youth Work. (2 cr; SP–3001, 3006; A-F only)
Students integrate their two years of observation, analysis, experiences, and reflections about youth work, youth programs. Workcarrer paths for beginning/advanced youth workers.

YoSt 3101. Introduction to Youth Work. (2 cr; QP–1 gen psy and 1 gen soc course; SP–1 gen psy and 1 gen soc course)
Explore settings in which youth work is done: schools, informal education, juvenile justice, mental and physical health organizations, religious organizations. Key issues, policy and programmatic responses; philosophy, values, roles, tasks of youthworkers, and career patterns.

YoSt 3001. Youth in the World. (3 cr; QP–Upper div AdPc course; SP–Upper div AdPc course)
Encourages critical thinking about how youth as ideal and as lived reality are understood in scholarship, public discourse, and professional practice. Larger framework includes building a basis for understanding youth and working with or on behalf of youth.

YoSt 3002. Child and Adolescent Psychology for Practitioners. (3 cr; QP–Courses in ed psy or child or adolescent psych)
Application of theory and research about children and adolescents including how findings can be used and how theories facilitate understanding of behavior.

YoSt 3101. Youth Work Practice I: Internship. (3 cr; QP–3100, 3330, #SP–3101, 3032 or equiv, ¶5111, #)
First course of a sequential internship that includes 15 hours per week working with youth in a community youth-serving organization. Develop and enhance competence and identity as a youth worker, and reflect on and integrate knowledge about youth with ongoing experience in youth work.

YoSt 3102. Youth Work Practice II: Internship. (3 cr; QP–5201, 5330, #SP–5101, 5102, #)
Second course of a sequential internship that includes 15 hours per week of work with youth in a community youth-serving organization. Develop and enhance competence and identity as a youth worker, and reflect on and integrate knowledge about youth with ongoing experience in youth work.

YoSt 5111. Youth Work Methods I: Seminar. (1 cr; QP–5201, 5202, #SP–3101, 3032 or equiv, ¶5101, #)
Weekly discussion seminar taken concurrently with 5101 to integrate theory and praxis with youth work experience. Written and experiential assignments to increase knowledge, competency, and skills related to working with youth.

YoSt 5112. Youth Work Methods II: Seminar. (1 cr; QP–5201, 5202, #SP–5111, #)
Weekly discussion seminar taken concurrently with 5102 to integrate theory and praxis with youth work experience. Written and experiential assignments to increase knowledge, competency, and skills related to working with youth.

YoSt 5234. Youth Agencies, Organizations, and Youth Service System. (2 cr; QP–Two soc/anth courses, work exper in a youth agency or org; SP–Two soc/anth courses, work exper in a youth agency or org)
Overview of major forms of youth agencies and organizations, sources of agency legitimacy, ideologies and values, and goals. Relations between and among agencies and organizations. Roles of adults and youth; professionals and nonprofessionals; paid staff and volunteers; youth participation; legal and ethical issues. Examples of existing and ideal agencies.

YoSt 5235. Community Building for Healthy Youth Development. (2 cr; QP–Two soc sci courses, exper working with youth or #SP–Two soc sci courses, exper working with youth or #)
Community is a major context of adolescence and youth life, and community-building is a major strategy for healthy development. Explore recent theory and government reports that address issues and practical problems of community-building.

YoSt 5240. Special Topics in Youth Studies. (2-8 cr; max 10 cr; QP–Two soc sci courses, exper working with youth or #SP–Two soc sci courses, exper working with youth or #)
In-depth investigation of one area of youth studies. Teaching procedure and approach determined by specific topic and student needs. Topic announced in advance.

YoSt 5311. Direct Work with Adolescents. (2 cr; QP–Two social sci courses, exper working with youth or #SP–Two social sci courses, exper working with youth or #)
Designed to give an understanding of direct work with troubled and at-risk adolescents in a wide range of settings where youth workers or social workers are typically involved. Emphasis on youth people in groups in the “life space” in everyday life, rather than in one-to-one office-based interactions.

YoSt 5321. Work with Youth—Individual. (2 cr; QP–5330 or equiv or #SP–5302 or equiv or #)
Examination of basic assumptions underlying individual work with youth. Attention to special issues and concerns of adolescents and of persons who work with them, especially those who work with youth in one-to-one interactions.

YoSt 5322. Work with Youth—Families. (2 cr; QP–5230 or equiv or #SP–5321 or upper div AdPc course, family theory course or #)
Theories and techniques of working with youth and their families. Emphasis on practical methods of structural change, developing effective communication, decision-making and problem-solving systems, winning the family’s cooperation; the role of the professional to influence healthy family development.

YoSt 5323. Work with Youth—Groups. (2 cr; QP–5320 or 5330 or #SP–5322 or upper div AdPc course, group theory course or #)
Increase knowledge and understanding of adolescent group needs and associations; increase knowledge of group process; and enhance skill in working with groups of adolescents in the community, in group living situations, and in group therapy.

YoSt 5402. Youth Policy: Enhancing Healthy Development in Everyday Life. (3 cr; QP–Two social sci courses, exper working with youth or #SP–Two social sci courses, exper working with youth or #)
Youth policy is typically grounded to problems and risks and is specific to human services domains such as education, health, juvenile justice, employment, and the like. Create youth policy directed at enhancing youth development through community building, program development, and other strategies.