LING 881 SOVIET PSYCHO-LINGUISTICS I  3
Study of the theories of Vygotsky, Luria, Leont'ev and others. Basic concepts in Soviet theory: activity, zone of proximal development and regulation

LING 882 SOVIET PSYCHO-LINGUISTICS II  3
PREREQ: LING881

LING 890 STUDIES IN LINGUISTICS  3
Varying topics in linguistics, such as grammatical theory, grammatical analysis, syntax, historical-comparative linguistics, stylistics and grammar testing. May be cross-listed with LING890

LING 964 PRE-CANDIDACY STUDY  3-12 PF
Research and readings in preparation for dissertation topic and/or qualifying examinations for doctoral students before admission to candidacy but after completion of all required coursework.
RESTRICTIONS: Not open to students who have been admitted to candidacy.

LING 969 DOCTORAL DISSERTATION  1-12 PF

LIBERAL STUDIES

MALS 600 NATURE AND HUMAN NATURE  3
Concentrates on salient views of nature and human nature, and the ways in which they have been shaped by the historical circumstances and disciplinary perspectives from which they were developed.
RESTRICTIONS: Open to majors only

MALS 603 THE AMERICAN FRONTIER: FACT AND FICTION  3
Uses novels, films and more traditional sources of information to examine the role of the frontier in shaping American attitudes and values.
RESTRICTIONS: Open to majors only

MALS 610 FORCE, CONFLICT AND CHANGE  3
From antiquity to the present, the use of force and the resolution of conflict have been among humanity's enduring preoccupations. Examines ideas about these issues, and associated questions such as the meaning of "heroism" and "just war."
RESTRICTIONS: Open to majors only

MALS 611 DOCUMENTARY: JOURNALISM AND FILM  3
Explores non-fiction narratives, both in print and on film. It looks at social reporting from the Victorian Era to the present, drawing analogies between the techniques of literature and cinema.
RESTRICTIONS: Open to majors only

MALS 613 LATIN AMERICAN EXPERIENCE  3
Examines recurring issues and problems in Latin America. The conflict between church and state, nationalization and a place in world affairs, tensions between the individual and society and the influence of the United States.
RESTRICTIONS: Open to majors only

MALS 614 THE FRENCH REVOLUTION: IDEAS, INTERPRETATIONS AND DISSERTATION  3
Examines ways in which the French Revolution of 1789-1815, with all its complex events and movements, has been perceived and conceptualized by contemporaries, commentators and professional scholars. In-depth study of its literature to see how human beings invented concepts and interpretations to make sense of the French Revolution.
RESTRICTIONS: Open to majors only

MALS 615 REASON, REVOLUTION AND THE RIGHTS OF MAN  3
Examines eighteenth-century French and English movement away from Cartesian rationalism and towards a rejection of reason leading to romanticism and revolution and an application of reason leading to a discussion of civil and human rights.
RESTRICTIONS: Open to majors only

MALS 616 ON THE NATURE OF GOOD AND EVIL: INQUIRIES IN LITERATURE, PSYCHOLOGY AND RELIGION  3
Focuses on novels and plays that explore the definition of good and evil in Judaeo-Christian culture. Students will read these literary works in conjunction with essays by psychologists and theologians who discuss the concept of good and evil from a variety of perspectives.
RESTRICTIONS: Open to majors only

MALS 617 AMERICAN ART IN CONTEXT  3
This course is designed to give the non-specialist in art history an understanding of how social, economic, religious, and cultural attitudes in America are reflected in its art, architecture, and decorative arts from the colonial period to the present. Discussion encompasses such subjects as patronage, regionalism, ethnicity, and gender.
RESTRICTIONS: Open to majors only

MALS 618 STUDIES IN THE HISTORY OF ART  3
Selected topics in the history of art. Focuses on art in the context of cultural and social history for an advanced audience of non-specialists.
RESTRICTIONS: Open to majors only

MALS 619 THE SCIENTIST IN SOCIETY  3
Scientific research is directly influenced by the society in which it is conducted. In addition to financial limitations, constraints are imposed by societal norms of what are acceptable topics and procedures for research. Focus on the philosophical basis of science as well as consequences to society of the scientific revolution.
RESTRICTIONS: Open to majors only

MALS 647 PHILOSOPHY OF TECHNOLOGY  3
See PHIL647 for course description.

MALS 648 ENVIRONMENTAL ETHICS  3
See PHIL648 for course description.

MALS 660 HUMANITIES COLLOQUIUM  3

MALS 869 MASTER'S THESIS  1-6

MALS 879 SYNTHESIS PROJECT  3-6

MATERIALS SCIENCE

MASC 302 MATERIALS SCIENCE FOR ENGINEERS  4
Crystal binding and structure; energies and structure of lattice defects; elasticity, plasticity, and fracture; phase equilibria and transformations; relations of structure and treatment to properties; structures of inorganic and organic polymers; and electronic and magnetic properties.

MASC 366 INDEPENDENT STUDY  1-6

MASC 406 CORROSION AND PROTECTION  3
PREREQ: Physical chemistry

MASC 446 SENIOR RESEARCH  1-6
Student will research general areas of Materials Science and/or Engineering under the direction of a member of the Materials Science Faculty or other faculty in science or engineering subject to the approval of the Materials Science Chair.
RESTRICTIONS: Open to seniors only. Science background required

MASC 466 INDEPENDENT STUDY  1-6

MASC 601 STRUCTURE AND PROPERTIES OF POLYMER MATERIALS  3
Measurement and control of the microstructure and properties of solid polymers. Structure generation, structure-property models and effects of processing on properties. May be cross-listed with CHEG601.
PREREQ: MASC302

MASC 602 STRUCTURE OF MATERIALS  3
PREREQ: MASC302

MASC 603 ANALYTICAL TECHNIQUES IN MATERIALS SCIENCE  3
Laboratory course in optical microscopy, X-ray diffraction, scanning and transmission electron microscopy, electron diffraction. X-ray fluorescence and microanalysis. Auger analysis and other spectroscopic techniques.
PREREQ: MASC302 and MASC602
COREQ: MASC602

MASC 604 PHASE TRANSFORMATIONS  3
PREREQ: MASC302

MASC 606 CORROSION AND PROTECTION  3
PREREQ: MASC302
MASC 607 PHYSICAL PROPERTIES OF MATERIALS I
Basic models of electrical, magnetic optical and thermal properties of solid materials. Introduction to quantum mechanics and electronic structure of atoms. Atomic and interatomic interactions. May be cross-listed with MEEG 614.
PREREQ: MASC 302 and PHYS 208.

MASC 614 FRACTURE OF MATERIALS
Fracture mechanics, mechanics of failure, and propagation of cracks, fracture toughness, and ductile-brittle transitions. Fatigue, stress, creep, corrosion and irradiation effects. Nonmetallic materials. May be cross-listed with MEEG 614.
PREREQ: MASC 302.
RESTRICTIONS: Graduate standing is acceptable in lieu of prerequisite.

MASC 615 MECHANICAL PROPERTIES OF MATERIALS
PREREQ: MASC 302.

MASC 616 CHEMISTRY AND PHYSICS OF SURFACES AND INTERFACES
See MEEG 616 for course description.

MASC 603 EQUILIBRIA IN MATERIAL SYSTEMS

MASC 604 KINETICS IN MATERIAL SYSTEMS

MASC 606 PHYSICAL PROPERTIES OF SOLIDS

MASC 607 PHYSICAL PROPERTIES OF MATERIALS II
Detailed theory of thermal, electrical, magnetic and optical properties of materials. Basic formalisms of quantum mechanics for applications to solid materials. Reciprocal space treatment of energy bands, phonon theory of lattice vibrations; scattering, absorption and emission of photons. Advanced materials and structures.
PREREQ: MASC 606.

MASC 811 ADVANCED TOPICS IN MATERIALS
Discussion of a topic of current interest in the science or engineering of materials.

MASC 817 COMPOSITE MATERIALS
See MEEG 817 for course description.

MASC 821 DIFFUSION OF RADIATION BY MATTER
Theory and analysis of diffusion from ideal and imperfect crystals, gases and liquids, and other atomic arrangements.

MASC 823 TRANSMISSION ELECTRON MICROSCOPY IN MATERIALS SCIENCE

MASC 868 RESEARCH

MASC 869 MASTER'S THESIS

MASC 964 PRE-CANDIDACY STUDY
Research and readings in preparation of dissertation topic and/or qualifying examinations for doctoral students before admission to candidacy but after completion of all required coursework.
RESTRICTIONS: Not open to students who have been admitted to candidacy.

MASC 969 DOCTORAL DISSERTATION

MARINE STUDIES

MAST 200 CONCEPTS IN OCEANOGRAPHY
Introduction to the scientific study of oceanography. Exploration of the multi-disciplinary nature of applying fundamental physics, chemistry, biology, geology, meteorology and mathematics to understanding the world ocean. Combined lectures with extensive video presentations illustrate field and laboratory research in oceanography.
PREREQ: MATH 241 or MATH 221; CHEM 1103 or CHEM 111; PHYS 201 or PHYS 207.

MAST 464 MARINE SCIENCE SUMMER INTERNSHIP
Students design a research project with an advisor and present it to peers, advisors and course instructor.

MAST 466 INDEPENDENT STUDY

MAST 482 INTRODUCTION TO OCEAN SCIENCES
A quantitative introduction to the ocean world including geography, geophysics, chemistry of seawater and sediments, physics of ocean circulation and waves and tides, description of oceanic and nearshore environments, and biology of the sea.
PREREQ: MATH 241 or MATH 221; CHEM 103 or CHEM 111; PHYS 201 or PHYS 207.

MAST 601 INTRODUCTION TO OCEANOGRAPHY
Topics include the geology and history of the ocean floor, oceanic sediments, the physics of the marine environment and the oceanic circulation, chemical processes in the oceans, and biological processes and production in the oceans.
RESTRICTIONS: For non-oceanographers. Requires graduate status.

MAST 602 PHYSICAL OCEANOGRAPHY
Geophysical and hydrodynamic aspects of oceanography. The geography of ocean basins; physical properties of seawater; radiation; and observed distributions of temperature, salinity, oxygen and currents. Scalar and vector fields; hydrostatics; kinematics, momentum dynamics, vorticity dynamics, viscous flow and eddy flux.
RESTRICTIONS: Requires permission of instructor.

MAST 615 INTRODUCTION TO MARINE BIOLOGY
Involves laboratory, field and lecture study for a broad understanding of marine biology and biochemistry.
RESTRICTIONS: For non-biologically oriented marine studies graduate students.

MAST 620 ENERGY POLICY AND ADMINISTRATION
See POSC 624 for course description.

MAST 621 COASTAL FIELD BIOLOGY
Hands-on study of estuarine and coastal communities with emphasis on patchiness in time and space. Instruction in field techniques as well as analysis and presentation of data. Experience in scientific writing.
PREREQ: General biology, ecology, genetics, physiology.

MAST 622 CONSERVATION, EFFICIENCY AND RENEWABLE ENERGY POLICY
See UAPP 626 for course description.

MAST 623 PHYSIOLOGY OF MARINE ORGANISMS
Processes and mechanisms of adaptation of organisms to marine environments. Examines how environmental factors affect physiological processes in marine organisms. Lectures address physiological processes at cellular, whole organism and habitat levels.

MAST 624 BIOLOGICAL OCEANOGRAPHY
Broad, multidisciplinary approach to marine life and biological processes in the oceans and estuaries. Species composition and biogeography discussed in relation to physical, chemical and geological processes. Examines and quantifies organisms' physiological responses to the abiotic and biotic environment.

MAST 626 TOPICS IN HALOPHYTE BIOLOGY
Analysis of current research in the biology of halophytic plants. Emphasis on student seminars and group discussions of the current literature.
RESTRICTIONS: May be repeated for credit when topics vary.

MAST 627 MARINE BIOLOGY
Ecologically oriented study of elementary oceanography, adaptive physiology, aspects of population and community ecology, reproduction and larval biology and marine production systems. Emphasis on coastal and estuarine habitats including soft- and hard-substrate intertidal regions, subtidal regions and coral reefs.
PREREQ: General Biology, Ecology, Genetics, and Physiology.
RESTRICTIONS: Requires permission of instructor.

MAST 628 COMPARATIVE ENVIRONMENTAL POLITICS
See UAPP 627 for course description.

MAST 629 TOPICS IN MARINE ECOLOGY
Selected topics in marine ecology and physiology. Topics may vary and will be announced in the registration booklet. Restrictions: Requires permission of instructor. May be repeated for credit when topics vary.
MAST 631 Marine Geology 3
See GEOG631 for course description.

MAST 633 Image Processing 3
See ELEG633 for course description.

MAST 634 Marine Biochemistry 3
Addresses biochemical processes and enzyme, metabolic and structural adaptations of marine plants and animals. Discussions on topics such as enzyme kinetics, enzyme structure and metabolic pathways to organisms in the marine environment.

RESTRICTIONS: Requires sufficient background in chemistry and permission of instructor.

MAST 635 Turbulence in the Environment 3
Fundamentals of turbulence including the dynamics of vorticity, the cascade of energy and the theory of Kolmogorov, turbulent diffusion and turbulence in density stratiﬁed ﬂows. Applications to many engineering disciplines as well as to meteorology and oceanography.

MAST 636 Applied Ocean Science Seminar 1
Invited speakers from university, industry and government research laboratories will discuss the latest advances in modeling and measurement of physical and biological properties of the oceans and coastal regions. Use of satellite remote sensing data and acoustic data in studies of ocean currents, waves, air-sea interaction turbulence, pollutant dispersion and coastal productivity will be emphasized.

MAST 640 Opto-electronics 3
See ELEG640 for course description.

MAST 645 General Oceanography 3
Introduction to the science of oceanography, emphasizing the physical and natural sciences nature of the subject matter and application to social schemes.

RESTRICTIONS: Offered off-campus, for public school teachers and general public.

MAST 646 Chemical Oceanography 3
Composition of seawater; physicochemical properties of seawater distributions of gases, nutrients and trace metals; and effect of biological processes on seawater composition.

PREREQ: CHEM103 and CHEM104.

MAST 647 Physical Chemistry of Seawater 3
Introduction to chemical equilibria in seawater. Topics include electrolyte theory, gas solubility, chemical speciation, acid-base equilibria and the carbon dioxide system. Emphasizes use of computer techniques to study oceanic chemical processes.

PREREQ: One year of chemistry.

RESTRICTIONS: Computer experience not required.

MAST 650 Clay Mineralogy 3
Crystallography, chemistry, physical properties, occurrence, origin and alteration of the clay and related minerals; theory and techniques of identiﬁcation, characterization and quantitative analysis using x-ray diffraction and electron microscopy; and cation exchange and size characteristics of clay minerals. Discussion of related topics, colloidal chemistry, thixotropic behavior, etc. May be cross-listed with GEOG650 and/or PSC560.

MAST 670 Introduction to Marine Policy 3
Provides an overview of conceptual approaches and analytical tools used in the ﬁeld as well as an overview of major substantive areas of marine policy. Covers primarily in a U.S. context: fisheries management, marine minerals exploitation, coastal management, marine transportation and naval power.

MAST 671 Coastal Processes and Management 3
Introduction to key processes operating in the coastal zone and to management techniques appropriate to these processes and environments. Emphasis on policy, regulatory and intergovernmental complexities that characterize coastal zone management in the United States and in other coastal nations.

MAST 672 Applied Policy Analysis 3
Empirical analysis of environmental and natural resource policy issues. Topics include valuation of natural resources, decision making under uncertainty, dynamic control and intertemporal issues in resource use and institutional aspects of policy analysis. May be cross-listed with ECON670.

PREREQ: ECON401.

MAST 673 International Law 3
Origins, sources and applications of law to international relations, including the nature of treaties, the legal powers of states and international organizations, jurisdiction and immunities, and the role of international courts. Special attention given to the law of the sea for navigation, ﬁsheries conservation, mineral exploitation and environmental protection.

May be cross-listed with POLS604.

RESTRICTIONS: Requires permission of instructor.

MAST 674 Legal Aspects of the Coastal Zone 3
Examines basic legal doctrines and public policy implications relevant to the development and protection of the coastal zone of the United States. Use, ownership and control of water and land beneath and bordering upon water; relationships between the states and the federal government in areas of marine affairs; environmental protection and legal controls of water pollution.

RESTRICTIONS: Requires permission of instructor.

MAST 675 Economics of Natural Resources 3
Study of the allocation of natural resources, especially marine and coastal zone resources, in modern economics. Application of economic theory to the problems of misallocations and the means of correction, under both free and planned markets. May be cross-listed with ECON675.

RESTRICTIONS: Requires permission of instructor.

MAST 676 Environmental Economics 3
Study of the choice of policies to protect the environment, including land, air and water resources. Theory of market failure and externalities, use of economic incentives in policy design, valuation of economic resources and examination of inefﬁciencies in existing U.S. environmental policies. May be cross-listed with ECON676.

PREREQ: ECON300.

MAST 677 Ocean Law and Policy 3
Focuses on understanding the strengths and weaknesses of the legal framework which governs ocean resources and ocean space beyond the limits of national jurisdiction. Evaluates international conventions which pertain to the ocean as to impact and effectiveness.

MAST 678 Admiralty and Maritime Law 3
An introduction to admiralty and maritime law, including jurisdiction and decisions on carriage of goods by sea, maritime liens, torts against seamen, collisions, salvage, marine pollution, and marine insurance, with study of public policy issues. May be cross-listed with POSC679 and/or UAPP679.

MAST 679 Shipping and Port Management 3
A seminar to study the structure and management of the shipping industry and ports, policies for ocean commerce, international trade, and merchant marine. May be cross-listed with POSC679.

MAST 680 Introduction to Applied Ocean Science 3
Basic quantitative and descriptive description of the behavior of solids, liquids, soils and engineering materials. Corrosion and environmentally induced forces. Design, construction and operation of marine structures, transportation energy and aquatic production systems. Role of remote sensing.

RESTRICTIONS: Requires permission of instructor. Not open to applied ocean science or engineering majors.

MAST 681 Remote Sensing of Environment 3
Detection and mapping of land and ocean resources with optical, infrared and microwave sensors. Analysis of satellite images using multispectral and spatial analysis techniques and correlation with ground/ship data. Application to oceanography, coastal processes, geology, land use, geography, agriculture, climate and pollution studies. May be cross-listed with EIEG681, and/or GEOG681.

RESTRICTIONS: Requires permission of instructor.

MAST 682 Current Topics in Applied Ocean Science 1-3
Advanced treatment of selected areas of the applied ocean sciences, including acoustic wave propagation; remote sensing of physical biological properties of the oceans; experimental ﬂuid dynamics; coagulation of suspended materials; and marine pollution prevention measures.

PREREQ: CHEM101.

RESTRICTIONS: For students with little or no background in material science. Not for credit for students that passed MASC302.

MAST 684 Particles in the Aqueous System 3
Deals with all aspects of particle ﬂocculation that occur within the bounds of the natural environment. Brings together from a number of ﬁelds (physics, engineering, chemistry and biotechnology) the theories, equations and principles that bear on the natural aqueous environment.

RESTRICTIONS: Requires permission of instructor.

MAST 685 Underwater Acoustics 3
Principles of underwater acoustics, including history and basic concepts; the sonar equation; propagation of sound in the sea; reﬂection and scattering; sonar background noise; detection of signals in noise; sonar systems; system requirements and operations; and signal processing and display.

MAST 686 Remote Sensing Seminar 1
Basic and applied research topics in remote sensing of earth resources, coastal processes, marine productivity, ocean dynamics and climatic effects presented by University students, faculty and guest speakers. Stresses advanced data acquisition and spectral and spatial image analysis techniques.

RESTRICTIONS: May be repeated for credit when topics vary.

MAST 687 Colloidal Science Seminar 1
Basic scientiﬁc and applied research topics in colloidal science presented by University students, faculty and guest speakers. Stresses the processes related to ﬁne particles in the marine environment.

RESTRICTIONS: May be repeated for credit when topics vary.
MAST 800  **DYNAMICAL PHYSICAL OCEANOGRAPHY**  3
Topics include basic definitions, conservation of mass, conservation of momentum, con-
ervation of vorticity, horizontal frictionless flow, wind-driven circulation, stability and
double diffusion, thermocline circulation and tides
RESTRICTIONS: Requires permission of instructor

MAST 804  **AIR-SEA INTERACTION I**  3
Atmospheric surface layer above and aequorea boundary layer below the air-sea inter-
face; and laboratory
RESTRICTIONS: Requires permission of instructor

MAST 806  **GEOPHYSICAL FLUID DYNAMICS I**  3
Development of the fundamental fluid dynamics used in analyzing flows in physical ocean-
cography and meteorology. Fundamentals of vorticity dynamics and geostrophy,
inviscid theory of Rossby waves, and Elman boundary layers
PREREQ: MEEG863 and MEEG854

MAST 807  **GEOPHYSICAL FLUID DYNAMICS II**  3
Investigation of fundamental topics in the dynamics of waves and circulation in dynami-
cal physical oceanography and meteorology. Wind-driven ocean circulation, quasi-
geostrophic motion of a stratified fluid, and instabilities
PREREQ: MAST806

MAST 808  **COASTAL/ESTUARINE PHYSICAL DYNAMICS**  3
Coastal and estuarine dynamics covering continental shelf wind-driven circulation, contin-
ental shelf waves; modes of estuarine circulation; shelf/estuary interaction; shelf break
front dynamics; and estuarine and river plume fronts
PREREQ: MAST802

MAST 809  **THE OCEAN AND CLIMATE VARIATION**  3
Study of the ocean-atmosphere system; the fluxes of heat, water and energy in the ocean
and interchanges with the atmosphere; budgets and mechanisms of exchange; and inter-
annual and long-term climate variations as related to the ocean
PREREQ: MAST602

MAST 810  **NUMERICAL OCEAN MODELING**  3
Application and analysis of numerical techniques for simulating time-dependent fluid flow
in two and three dimensions with specific application to large-scale ocean flows. Covers
finite-difference, finite-element and spectral techniques. Computer implementation of at
least one example problem
PREREQ: MAST807 and MAT6160
RESTRICTIONS: Requires proficiency in FORTRAN, C or Pascal

MAST 811  **OCEANOGRAPHIC TIME SERIES ANALYSIS**  3
Quantitative techniques for data processing and time series analysis. Topics include basic
definitions, linear systems, digital filters, statistical techniques, auto-spectrum esti-
mation, cross-spectrum estimation, Monte Carlo technique, empirical orthogonal function
analysis and rotary spectrum estimation
RESTRICTIONS: Requires permission of instructor

MAST 814  **POLITICAL ECONOMY OF THE ENVIRONMENT**  3
See UAPP810 for course description

MAST 815  **DEEP-SEA SEDIMENTATION**  3
Students will examine the formation of deep-sea sediments. Emphasis will be placed on
the geographic distribution of sediments, the processes that developed these sediments,
and how they relate to global paleoceanographic and paleoclimatic changes
PREREQ: MAST631
RESTRICTIONS: Requires permission of instructor

MAST 816  **BIOLOGICAL OCEANOGRAPHIC PROCESS**  1-4
Multidisciplinary approach to the abundance and distribution of organisms in the
oceans, the physiological and behavioral responses of organisms to the abiotic and biot-
ic environment and the role of organisms in modifying the environment. Taught as six
modules: algae, bacteria, protozoa, zooplankton, benthos, fish and fisheries
PREREQ: General Biology, Ecology, Microbiology, and Invertebrate Biology
RESTRICTIONS: May be repeated for credit when topics vary

MAST 820  **EXPERIMENTAL DESIGN SEMINAR**  1
Forum for presentation of research plans or results with emphasis on experimental design
and data analysis. Ensuring discussion aids preparation of research proposals and sharp-
ers critical assessment of own and colleagues' work

MAST 821  **MARINE BIOLOGY/BIOCHEMISTRY SEMINAR**  1-3
With each offering, addresses a different specific topic, e.g., tropical marine biology,
larval dispersal, estuarine productivity, etc
RESTRICTIONS: May be repeated for credit when topics vary

MAST 823  **PHYTOPLANKTON BIOLOGY**  3
Comprehensive treatment of the structure, biochemistry, physiology and ecology of phy-
toplankton to understand its distribution and growth in the sea. Aspects include spatial
and temporal variations of phytoplankton biomass and productivity; physiological
descriptions of growth, photosynthesis and nutrient uptake; mechanisms of physiological
adaptation to environmental variables; and structural and biochemical bases of phyto-
plankton taxonomy and biogeochemistry
PREREQ: MAST624

MAST 827  **CURRENT TOPICS IN MARINE BIOLOGY**  1-4
Subject areas change each term and will be announced in the registration booklet. Top-
ics include aspects of plant biology, fish and invertebrate ecology and other aspects of
marine ecology. May include lectures, tutorials and demonstration of techniques
RESTRICTIONS: Requires permission of instructor. May be repeated for credit when topics
vary

MAST 828  **CURRENT TOPICS IN MARINE BIOCHEMISTRY**  1-4
Subject areas change each term and will be announced in the registration booklet. Top-
ics include marine chemical ecology, marine natural products chemistry, marine bio-
chemistry of marine plants and animals. May include lectures, tutorials and demon-
stration of techniques
PREREQ: Graduate course in biochemistry.
RESTRICTIONS: May be repeated for credit when topics vary

MAST 831  **ESTUARINE AND SHELF GEOLOGICAL OCEANOGRAPHY**  3
Origin, distribution and character of sediments deposited in the estuarine and shelf
environment. Identification of sediments of the estuarine and shelf
PREREQ: MAST631 and GEO631.

MAST 847  **CURRENT TOPICS IN CHEMICAL METHODS IN
OCEANOGRAPHY**  1-3
Principles, capabilities and limitations of analytical methods to the chemistry of marine
waters and sediments. Analytical methods and techniques include biochemical, spec-
troscopic, chromatographic, electron microcopy and surface techniques. Emphasis on the
analysis of trace elements (biochemical, inorganic and organic) in the marine environment.
Laboratory experiments. Topics vary and will be announced in the registration booklet
PREREQ: MAST645 or analytical chemistry
RESTRICTIONS: May be repeated for credit when topics vary

MAST 848  **GEOCHEMICAL OCEANOGRAPHY**  3
Chemical origin and formation of the ocean; chemistry of marine sediments; transfer of
chemicals to and within the sea (weathering and global cycles); marine precipitates;
chemical principles of marine geological reactions (solubility and redox); sediment dia-
genesis and pore water chemistry; and use of stable and radioisotopes in the oceans.
PREREQ: Aquatic Chemistry and Physical Chemistry

MAST 849  **ORGANIC CHEMICAL OCEANOGRAPHY**  3
Covers descriptive organic chemical studies of seawater and processes that influence
organic compounds in seawater and marine organisms
PREREQ: Organic Chemistry

MAST 850  **MARINE INORGANIC CHEMISTRY**  3
Principles of inorganic chemistry are used to explain and to understand the speciation
and reactivity of the elements in the marine environment. Emphasis on the mechanistic
aspects of important marine processes including mineral dissolution and formation, elec-
tron transfer reactions and the role of metals in biogeochemical reactions. May be cross-
listed with CHEM655
PREREQ: MAST646, aquatic chemistry or physical chemistry

MAST 853  **OCEANOGRAPHY SEMINAR**  1
A review of current oceanographic literature through student presentations
RESTRICTIONS: May be repeated for credit when topics vary

MAST 854  **MARINE SEDIMENTARY GEOLOGY**  3
Fluxes of major, minor, trace and nutrient elements from ocean waters to marine sedi-
mentary deposits, with emphasis on the deposition of material on the ocean floor, the
reaction and transport regimes in sediments that redistribute this material, and return flux-
es from sediments to the overlying water
PREREQ: MAST646

MAST 855  **COASTAL AND ESTUARINE CHEMISTRY**  3
Distributions, behavior, and chemical processes in estuarine and coastal waters are
examined in this advanced general chemical oceanography course. Greater heterogene-
ity of physical controls and surfogogic reactions give a unique nature to this coastal
corridor in the global flux from land to sea
PREREQ: MAST646

MAST 856  **BIOGEOCHEMICAL OCEANOGRAPHY**  1-4
 Modular Graduate seminar of individual offerings inspects aspects of marine biogeo-
chemical cycle. Includes such topics as atmospheric and oceanic fluxes, climatic feed-
back controls involving the ocean, and the role of the marine environment in global
change.
RESTRICTIONS: May be repeated for credit when topics vary

MAST 868  **RESEARCH**  1-9

MAST 869  **MASTER'S THESIS**  1-6
MATH 870 Advanced Marine Policy 3
A continuation of MATH 870. Explains conceptual approaches and analytical tools in greater detail and applies them to specific marine policy issues in several nations. Comparisons and contrasts national ocean policies at a selected number of nations. Students evaluate and/or resolve a marine policy issue of their choice at a local, state, national, or international level.
PREREQ: MATH 870.

MATH 871 Environmental Policy and Administration 3
See POSC 818 for course description.

MATH 873 Seminar: Marine Policy 1
Current topics in marine policy based on recent journal articles and active research and policy relevant activities of students, faculty and visitors from other universities and government agencies. Emphasis on research design and formats for oral and written presentation of results.
RESTRICTIONS: May be repeated for credit when topics vary.

MATH 875 Advanced Fishery Economics 3
Theoretical and applied study of the optimal utilization and management of commercial and recreational fisheries with emphasis on equity issues and the difficult of deriving regulations which are biologically effective and which provide incentives for economic efficiency at reasonable costs. May be cross-listed with ECON 875.
PREREQ: MATH 875 or ECON 875.

MATH 880 Principles of Applied Ocean Science 3
Principles of ocean energy conversion, remote sensing, materials and corrosion, soil mechanics, foundations, aquaculture, intensive aquatic production, coastal erosion, and sedimentation are studied in the context of creative interdisciplinary research and applied in the analysis of a single major marine problem or opportunity using a "case study" approach. Normally involves a practicum.

MATH 881 Satellite Oceanography 3
Fundamentals of remote sensing in oceanography, including space platforms, their orbits, instruments, data retrieval and image processing. Oceanographic applications of remote sensing, including visible, infrared and microwave techniques for sensing ocean color, temperature, salinity, currents, and waves. Recent developments of remote sensing models for oceanic studies and new developments in data analysis.
RESTRICTIONS: Requires permission of instructor.

MATH 884 Biological Effects at Surfaces 3
Fundamentals of bioattachment for micro and macroorganisms. Conditioning films and hosti1d mechanisms influence of chemical and electrical surface properties. Applications to marine fouling and its control, marine degradation of heat transfer surfaces, dental plaque formation, biomedical implants and others.
RESTRICTIONS: Requires permission of instructor.

MATH 964 Pre-Candidacy Study 3-12 PF
Research and readings in preparation for dissertation topic and/or qualifying examination for doctoral students before admission to candidacy but after completion of all required course work.
RESTRICTIONS: Not open to students who have been admitted to candidacy.

MATH 969 Doctoral Dissertation 1-12 PF

MATHEMATICS

MATH 101 Intermediate Algebra 3 R
Review skills necessary for Pre-calculus and College Mathematics and Statistics courses. Topics include a review of sets, operations with polynomial and rational expressions, solving equations and inequalities, and an introduction to the coordinate plane and functions.
RESTRICTIONS: Requires arithmetic and Algebra I skills.

MATH 102 Concepts of Intermediate Algebra 1-3 R
Reviews skills necessary for Pre-calculus and College Mathematics and Statistics courses. Topics (when three credits are completed) include a review of sets, operations with polynomial and rational expressions, solving equations and inequalities, and an introduction to the coordinate plane and functions.
RESTRICTIONS: Requires arithmetic and Algebra I skills.

MATH 114 College Mathematics and Statistics 3
Stresses mathematical concepts and algebraic skills with a strong emphasis on applications in the areas of management, life and social sciences. Topics include various function classes and models, linear programming and statistics including descriptive and inferential statistics.
PREREQ: MATH 102 or MATH 101.
RESTRICTIONS: Only three credits from any combination of MATH 114, MATH 115, MATH 170, MATH 171 and MATH 172 can count toward graduation.

MATH 115 Pre-Calculus 3
The various classes of functions and their graphs are explored. Function classes include linear, quadratic, polynomial, rational, exponential, logarithmic and trigonometric. Skills and concepts needed for calculus (MATH 221 and MATH 241) are emphasized.
PREREQ: MATH 101 or MATH 102.
RESTRICTIONS: Only three credits from any combination of MATH 114, MATH 115, MATH 170, MATH 171 and MATH 172 can count toward graduation.

MATH 170 Self-Paced College Mathematics and Statistics 1-3
Stresses mathematical concepts and algebraic skills with an emphasis on applications in the areas of management, life and social sciences. Topics include various function classes and models, linear programming and statistics. Variable credit allows the student to complete the course at a slower pace.
PREREQ: MATH 101 or MATH 102.
RESTRICTIONS: Only three credits from any combination of MATH 114, MATH 115, MATH 170 and MATH 172 can count toward graduation.

MATH 171 Self-Paced Pre-Calculus 1-3
Explores the various classes of functions and their graphs. Function classes include linear, quadratic, polynomial, rational, exponential, logarithmic and trigonometric. Emphasizes skills needed for calculus (MATH 221 and MATH 241). Variable credit option provides an opportunity to change the pace of the course.
PREREQ: MATH 101 or MATH 102.
RESTRICTIONS: Only three credits from any combination of MATH 114, MATH 115, MATH 170, MATH 171 and MATH 172 can count toward graduation.

MATH 172 Algebra and Precalculus 2
Mastery-based algebra review followed by concepts required for MATH 221, developed around functions and their graphs (polynomial, rational, logarithmic and exponential).
RESTRICTIONS: Only three credits from any combination of MATH 114, MATH 115, MATH 170, MATH 171 and MATH 172 can count toward graduation.

MATH 179 Problem Solving Strategies 1
Designed to study a multitude of problem solving strategies such as working backwards, look for a pattern, etc. In particular, will emphasize the use of these strategies with the content that secondary mathematics teachers normally teach.
PREREQ: MATH 241.

MATH 210 Discrete Mathematics 1-3
Sets, logic, induction, number systems, counting, introduction to graph theory, sequences and formal power series.
PREREQ: MATH 115.
RESTRICTIONS: Credit cannot be received for both MATH 210 and MATH 230.

MATH 221 Calculus I 3
Topics include functions, graphing functions, limits, derivatives, sequences, series, exponential and logarithmic functions, and integration.
RESTRICTIONS: Requires two years of high school algebra and one year of geometry.
Credit cannot be received for both MATH 221 and MATH 241.

MATH 222 Calculus II 3
Topics include integration, Taylor polynomials, series, multivariable calculus and trigonometric functions.
PREREQ: MATH 221.
RESTRICTIONS: For students in the behavioral, management and social sciences. Credit cannot be received for both MATH 222 and MATH 242.

MATH 230 Finite Mathematics with Applications 3
Set theory, probability, optimization, linear programming and an introduction to matrix methods.
PREREQ: MATH 221.
RESTRICTIONS: For students in the behavioral, management and social sciences. Credit cannot be received for both MATH 230 and MATH 210.

MATH 241 Analytic Geometry and Calculus A 4
Functions, limits, continuity, derivatives and definite integrals.
RESTRICTIONS: Requires two years of high school algebra, one year of geometry and trigonometry. Credit cannot be received for both MATH 241 and MATH 221.

MATH 242 Analytic Geometry and Calculus B 4
Exponential and log functions, inverse trig functions; integration techniques; parametric curves; polar coordinates; infinite series; includes use of the computer package, Maple, to perform symbolic, numerical and graphical analysis.
PREREQ: MATH 241.
RESTRICTIONS: Credit cannot be received for both MATH 242 and MATH 222.

MATH 243 Analytic Geometry and Calculus C 4
Vectors, operations on vectors, velocity and acceleration, partial derivatives, directional derivatives, optimization of functions, vectors in five dimensional and three dimensional regions, line integrals, Green's Theorem. Includes use of the computer package, Maple, to perform symbolic, numerical and graphical analysis.
PREREQ: MATH 242.
MATH 245  AN INTRODUCTION TO PROOF  3
Basic set operations, relations, equivalence relations, functions, inverse functions, cardinality, order properties of real numbers, least upper bound, greatest lower bound, completeness axiom, topology of reals, complex numbers  
PREREQ: MATH243

MATH 251  MATHEMATICS FOR THE ELEMENTARY SCHOOL I  3
Basic number concepts: numeration, whole numbers, integers, rational numbers, real numbers and arithmetic procedures  
RESTRICTIONS: Requires College of Education Mathematics Competency Test

MATH 252  MATHEMATICS FOR THE ELEMENTARY SCHOOL II  3
Continuation of MATH 251  
PREREQ: MATH 251

MATH 253  MATHEMATICS FOR ELEMENTARY SCHOOL III  3
Continuation of MATH 251 and 252. Focuses on topics in geometry  
PREREQ: MATH 252

MATH 280  INSIGHTS INTO MATHEMATICS  3
A basic course. Mathematics presented as a human endeavor. Topics include problem solving, reasoning and modeling  
PREREQ: MATH 114 or MATH 115
RESTRICTIONS: For liberal arts students not necessarily planning further study in mathematics

MATH 302  ORDINARY DIFFERENTIAL EQUATIONS  3
Solutions and applications of ordinary differential equations as well as systems. Considers initial value problems and boundary value problems. Topics include Laplace transforms, the phase plane, series solutions and partial differential equations. Includes use of the computer package Maple  
PREREQ: MATH 243  
RESTRICTIONS: Credit not given for both MATH 302 and either MATH 341 or MATH 342

MATH 303  DIFFERENTIAL EQUATIONS COMPUTING LAB  1
Provides computing experience in differential equations  
COREQ: MATH 302

MATH 305  APPLIED MATHEMATICS FOR CHEMICAL ENGINEERING  3
A special applied mathematics course designed for chemical engineering majors. Emphasis is given on the interaction between mathematical theory and its engineering applications. May be cross-listed with CHEG 305  
PREREQ: MATH 302
RESTRICTIONS: For chemical engineering majors only

MATH 315  DISCRETE MATHEMATICS I  3
Algorithms and graph theory. Correctness and complexity of algorithms, recurrence relations, numerical algorithms, algorithms for polynomials (such as Horner’s method)  
PREREQ: MATH 210 and MATH 241

MATH 341  DIFFERENTIAL EQUATIONS WITH LINEAR ALGEBRA I  3
Topics include first and second order differential equations, systems of algebraic equations, determinants, vector spaces, eigenvalues and eigenvectors of matrices and systems of differential equations. Emphasis on the interaction between these topics and appropriate physical systems  
PREREQ: MATH 242  
RESTRICTIONS: Credit not given for both MATH 302 and MATH 341, or both MATH 349 and MATH 341

MATH 342  DIFFERENTIAL EQUATIONS WITH LINEAR ALGEBRA II  3
A continuation of MATH 341. Topics include series solutions, Laplace transform methods, boundary value problems, orthogonality, higher order equations, difference equations and numerical techniques. Continued emphasis on the interaction between these topics and physical systems  
PREREQ: MATH 341
RESTRICTIONS: Credit not given for both MATH 349 and MATH 342, or both MATH 302 and MATH 342

MATH 349  ELEMENTARY LINEAR ALGEBRA  3
Systems of linear equations, matrix algebra and determinants. Vector spaces, linear dependence and independence, basis and dimension. Linear transformations, matrix representation and similarity transformations. Includes use of the computer for analysis and solution of problems in linear algebra  
PREREQ: MATH 230 or MATH 242  
RESTRICTIONS: Credit not given for both MATH 349 and either MATH 341 or MATH 342

MATH 366  INDEPENDENT STUDY  1-6

MATH 379  PROBLEM SOLVING STRATEGIES  1
Studies a multitude of problem solving strategies such as looking for a pattern, making a model, working backwards, etc  
COREQ: MATH 380  
RESTRICTIONS: Requires permission of the Committee on Secondary School Mathematics. Not for major (B.A. or B.S.) or minor credit in Mathematical Sciences

MATH 380  APPROACHES TO TEACHING MATH  3
Aims, course planning, instructional strategies, evaluation and selection of materials for teaching mathematics in secondary schools  
COREQ: MATH 379  
RESTRICTIONS: Requires permission of the Committee on Secondary School Mathematics. Not for major (B.A. or B.S.) or minor credit in Mathematical Sciences

MATH 381  PRACTICUM IN SECONDARY MATHEMATICS  1 PF
Teaching experience in a clinical setting. The Math Center helps develop an inquiring attitude: to be a perceptive observer of the learning behaviors of those taught, one must develop hypotheses about the causes of misconceptions, means of diagnosing them and methods of treatment (including uses of technology)  
COREQ: MATH 243  
RESTRICTIONS: Requires permission of the Committee on Secondary School Mathematics. Not for major (B.A. or B.S.) or minor credit in Mathematical Sciences

MATH 389  GRAPH THEORY  3
Basic graph theory (paths and circuits, trees and forests, connectivity and coloring theorems) and network flow theory. Applications to areas such as economics, engineering, chemistry and sociology  
PREREQ: MATH 210

MATH 401  ADVANCED CALCULUS  3
A rigorous treatment of one variable calculus. Topics will include sequences of real numbers, limit theorems, monotone sequences, Cauchy sequences, Bolzano-Weierstrass Theorem, continuity, uniform continuity, differentiability and Riemann integral  
PREREQ: MATH 245

MATH 426  INTRODUCTION TO NUMERICAL ANALYSIS AND ALGORITHMIC COMPUTATION  3
Direct and iterative methods for solution of algebraic equations and systems of linear equations, matrix inversion, pseudo-inverses, algebraic eigenvalue problems, linear least-square problems and nonlinear equations. Stresses both numerical analysis and algorithmic aspects. May be cross-listed with CISC 410  
PREREQ: MATH 449 and CISC 106  
RESTRICTIONS: Requires familiarity with computing (e.g., programming language)

MATH 428  ALGORITHMIC AND NUMERICAL SOLUTION OF DIFFERENTIAL EQUATIONS  3
Algorithms for numerical integration and differentiation. Initial value problems; boundary value problems in ordinary differential equations; finite difference (explicit and implicit) methods; polynomial and spline approximation; finite elements and collocation; and introduction to numerical methods for partial differential equations. May be cross-listed with CISC 411  
PREREQ: MATH 426 or CISC 410.

MATH 451  ABSTRACT ALGEBRA I  3
Basic properties of the integers and the rationals, fields of quotients, polynomial rings, rootfinding, introduction to groups and vector spaces  
PREREQ: MATH 349 and MATH 245

MATH 466  INDEPENDENT STUDY  1-6

MATH 503  ADVANCED CALCULUS FOR APPLICATIONS  3
Multivariable calculus, vector calculus, infinite series, uniform convergence and Fourier analysis  
PREREQ: MATH 302

MATH 508  INTRODUCTION TO COMPLEX VARIABLES AND APPLICATIONS  3
Introduction to analytic functions, contour integration, power series, residues and conformal mapping  
PREREQ: MATH 243

MATH 510  MODELING AND ANALYSIS OF ENVIRONMENTAL SYSTEMS  3
An elementary course to introduce basic analytical and numerical methods for studying mathematical problems arising in environmental sciences  
PREREQ: MATH 242 or equivalent
RESTRICTIONS: Open to Environmental Science graduate students or by consent of instructor

MATH 518  MATHEMATICAL MODELS AND APPLICATIONS  3
Illustration and analysis of mathematical models for problems in the biological, physical and social sciences  
PREREQ: Either MATH 230, or MATH 349 and STAT 370.
MATH 529 Linear Programming: Methods and Applications 3
Theory of linear programming (linear inequalities, convex polyhedra, duality), related topics (games, integer programming), main algorithms (simplex, dual) and representative applications in agriculture, economics, engineering, operations research and mathematics. Familiarity with computer implementation of LP methods acquired by individual (or small group) projects of applying LP to the students' chosen areas
PREREQ: MATH349

MATH 540 Geometry 3
Rigorous introduction to classical real analysis. Brief review of real numbers and a thorough discussion of the basic topology of metric spaces. Covers in detail the following topics: the analysis of sequences and series, continuity, differentiation and Taylor's theorem, and the analysis of sequences and series of functions
PREREQ: MATH401

MATH 555 Applied Calculus for Business and Economics 3
Rigorous introduction to classical real analysis. Brief review of real numbers and a thorough discussion of the basic topology of metric spaces. Covers in detail the following topics: the analysis of sequences and series, continuity, differentiation and Taylor's theorem, and the analysis of sequences and series of functions
PREREQ: MATH503 or MEEG863 or PHYS207

MATH 584 Advanced Secondary Mathematics Methods 3
Designed to develop perspectives, knowledge, and frameworks which an inservice teacher can use to organize, interpret and critique their own teaching experience and that of others
PREREQ: MATH581

MATH 585 Technology in Secondary Mathematics 3
Major emphasis on learning how to use computer software to enhance both the teaching and learning of algebra, geometry, statistics, probability and precalculus. Participants get hands-on experience with a function plotter, spreadsheet, geometry package and a statistical/probability package
PREREQ: Undergraduate statistics course

MATH 600 Fundamentals of Real Analysis 3
Rigorous introduction to classical real analysis. Brief review of real numbers and a thorough discussion of the basic topology of metric spaces. Covers in detail the following topics: the analysis of sequences and series, continuity, differentiation and Taylor's theorem, and the analysis of sequences and series of functions
PREREQ: MATH401

MATH 602 Advanced Calculus - Introduction to Analysis II 3
Continuation of Math600
PREREQ: MATH600

MATH 605 Applied Functional Analysis 3
Introduction to formulation and solution of problems of engineering and science by means of functional analytic methods in Hilbert and Banach spaces. Includes boundary and initial value problems in ordinary and partial differential equations as well as integral equations. Emphasis on constructive techniques: variational methods, approximate solutions, bounds for eigenvalues, etc
PREREQ: MATH514, PHYS608, MEEG864 or advanced calculus

MATH 611 Introduction to Numerical Analysis and Scientific Computing I 3
Introduction to numerical computing, analysis and solution of systems of linear equations, linear least-squares, eigenvalue problems, methods for unconstrained optimization, solution of systems of nonlinear equations. Experience with standard computer packages, code development and simulations of applied problems
PREREQ: MATH503 or MEEG863 or PHYS207

MATH 612 Introduction to Numerical Analysis and Scientific Computing II 3
Approximation, interpolation, data fitting and smoothing, numerical methods for ordinary differential equations. Additional topic selected at discretion of instructor. Experience with standard computer packages, code development and simulations of applied problems
PREREQ: MATH503 or MEEG863 or PHYS207

MATH 613 Applied Symbolic Computation 3
See CSCI623 for course description

MATH 616 Introduction to Applied Mathematics I 3
Introduction to topics and techniques used in solving problems arising in a variety of physical settings: Stability of nonlinear systems of ODE's, Sturm-Liouville problems and Green's functions. The wave, heat and Laplace equations. Elementary analysis of some nonlinear PDE's, special functions, asymptotic expansions and perturbation theory
PREREQ: One semester of advanced calculus and PHYS208

MATH 617 Introduction to Applied Mathematics II 3
Continuation of MATH616
PREREQ: MATH616

MATH 632 Topics in Applied Probability 3
The application of probability theory or stochastic processes in a specific area of science. May include treatment of probabilistic methods not ordinarily covered in other courses. Possible topics are the theory of queues, domino and inventories, replacement and reliability, probability models in population growth and biomathematics, Monte Carlo simulation, algorithmic techniques in probability and operational methods

MATH 650 Abstract Algebra 3
Modular arithmetic, Chinese remainder theorem, rings (including polynomial rings), ideals and quotient rings, groups and homomorphism theorems, unique factorization and principal ideal domains, field extensions
PREREQ: MATH349

MATH 654 Methods of Optimization 3
Review of linear programming, unconstrained and constrained nonlinear programs, numerical methods, Kuhn-Tucker theory, duality and Lagrange multipliers

MATH 698 Thematic Seminar 2 PF
Problems oriented class, topics vary from year to year. Aim is to give students research experience in mathematics and to show how mathematics is used to solve problems
MATH 801 Calculus of Variations 3
Comprehensive introduction to variational principles and methods in science and engineering; classical calculus of variations with applications to mechanics; problems of optimal control; direct methods including the method of Filo&-Galerkin. Emphasis on applications.
RESTRICTIONS: Requires familiarity with concepts of advanced calculus.

MATH 805 Analysis I 3
Topics include Lebesgue measure and integration, absolute continuity and functions of bounded variations, Lipschitz spaces and Fubini's theorem.
PREREQ: MATH602

MATH 806 Analysis II 3
Fundamental results for normed linear spaces with special emphasis on the theory of Hilbert space, spectral theory and application to integral and differential equations.
PREREQ: MATH805

MATH 807 Complex Analysis 3
Complex numbers; analytic functions; geometry of elementary functions; integrals; power series; residues and poles.
PREREQ: MATH602

MATH 808 Complex Analysis 3
Conformal mapping with applications; analytic continuation; Riemann surfaces; elliptic functions; and infinite products.
PREREQ: MATH607

MATH 811 Topics in Analysis 3
Investigation of topics chosen from function theory, functional analysis, optimization, etc.
RESTRICTIONS: Requires permission of instructor.

MATH 815 Nonlinear Functional Analysis 3
Fixed point theorems, differential calculus in normed spaces, implicit function theorem, variational methods, monotone operators and variational inequalities. Selected applications.
PREREQ: MATH806

MATH 818 Theory of Ordinary Differential Equations 3
Linear systems with isolated singularities and systems with periodic coefficients; boundary value problems; Poincare-Bendixson theory.
PREREQ: MATH609 and MATH805

MATH 822 Integral Equations 3
RESTRICTIONS: Requires permission of instructor.

MATH 823 Topics in Differential and Integral Equations 3
Topics chosen from ordinary and partial differential equations and singular and nonlinear integral equations.
RESTRICTIONS: Requires permission of instructor.

MATH 824 Topics in Applied Mathematics 3
Topics chosen from asymptotic analysis, elasticity, electromagnetic theory, fluid dynamics, optimal control theory and other areas.
RESTRICTIONS: Requires permission of instructor.

MATH 827 General Topology 3
Generation and properties of topological spaces. Continuity, separation and countability properties; convergence of nets and filters.

MATH 828 Topics in Topology and Dynamics 3
Continuation of MATH827. Topics covered vary.
PREREQ: MATH627

MATH 835 Partial Differential Equations I 3
First order differential equations and systems. Existence and uniqueness for elliptic, parabolic and hyperbolic equations. Boundary and initial value problems for equations of hyperbolic and parabolic type in two independent variables. Classical approaches employed.
RESTRICTIONS: Requires permission of instructor.

MATH 836 Partial Differential Equations II 3
PREREQ: MATH835 and MATH805

MATH 838 Numerical Methods for Partial Differential Equations 3
Introduces concepts of consistency, stability and convergence of numerical schemes. Emphasis on various finite difference schemes and their applications to fundamental partial differential equations.
RESTRICTIONS: Requires permission of instructor.

MATH 839 Topics in Numerical Analysis and Scientific Computing 3
Emphasis on finite element method and its applications to physical problems.
RESTRICTIONS: Requires permission of instructor.

MATH 845 Group Theory with Applications 3
Groups acting on sets, the class equation, Sylow's theorems, free groups, classical groups, Polya enumeration theory, groups and graphs, frieze groups and crystallographic groups, and the group Knapsack problem.
PREREQ: MATH650

MATH 846 Field Theory with Applications 3
Field extensions, structure of finite fields, and basis of Galois theory. Applications of finite fields to block designs and finite geometries. Additional applications may include impulse response sequences, pseudorandom sequences, algebraic coding theory, BCH and Goppa codes and cryptosystems.
PREREQ: MATH650, MATH672, and MATH845

MATH 850 Foundation of Probability Theory 3
Mathematically rigorous treatment of the foundations of probability theory. Families of sets, semirings and sigma algebras, axioms of probability, and extension theorem. Random variables, probability distributions, and modes of convergence for sequences of random variables. Product measure and independence and conditional expectation. The weak and strong laws of large numbers, the central limit theorem and the law of the iterated logarithm.
PREREQ: MATH630 and MATH805

MATH 851 Stochastic Processes 3
Mathematically rigorous treatment of stochastic processes. Course content: general definitions, separability, Kolmogorov consistency condition. Markov processes and Brownian motion. In-depth discussion of topics such as weak convergence of processes, martingale theory, diffusion processes or second order processes, as announced by instructor.
PREREQ: MATH850

MATH 868 Research 1-6

MATH 869 Master's Thesis 1-6

MATH 870 Reading in Mathematics 1-6

MATH 887 Mathematical Methods of Physics and Engineering 3
Green's function and eigenfunction expansions for boundary value problems, theory of distributions, weak solution, metric spaces, contractions, integral equations and Hilbert spaces.
PREREQ: MATH503, MATH508 or MEEG863, MEEG864 or PHYS607, and PHYS608

MATH 888 Topics in Algebra and Combinatorics 3
Advanced topics from algebra and number theory, designs, finite geometries, codes, cryptography, graph theory, discrete optimization, algorithms and complexity.
RESTRICTIONS: Requires permission of instructor.

MATH 964 Pre-Candidacy Study 3-12 PF
Research and readings in preparation of dissertation topic and/or qualifying examination for doctoral students before admission to candidacy but after completion of all required course work.
RESTRICTIONS: Not open to students who have been admitted to candidacy.

MATH 969 Doctoral Dissertation 1-12 PF

MECHANICS

MECH 305 Fluid Mechanics 3
Incompressible fluid mechanics: fluid statics, control volume analysis of fluid flows, differential analysis of inviscid and viscous fluid flows and dimensional analysis.
PREREQ: CIEG212 or MEEG213 and MATH302
COREQ: MEEG304

MECH 306 Fluid Mechanics Laboratory 1
Experiments in fluid mechanics.
COREQ: MEEG305

MEDICAL TECHNOLOGY

MEDT 100 Introduction to Medical Technology 1 PF
Orientation to profession of Medical Technology.

MEDT 366 Independent Study 1-6

MEDT 370 Phlebotomy Practicum 1
Introduction to the theory and performance of phlebotomy. Supervised clinical experience in the application of laboratory theory and techniques in phlebotomy.
RESTRICTIONS: Open to Medical Technology majors only.
MEDT 372 Diagnostic Parasitology 2
Study of human parasites, emphasizing detection and identification of diagnostic forms.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 376 Introduction to Clinical Chemistry 1
Introduction to laboratory principles and mathematics, laboratory safety, quality control, quality assurance and spectrophotometry.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 376 Clinical Virology and Immunology 2
Fundamentals of diagnostic virology, chlamydiology and serology, including theory, disease correlation, laboratory techniques and safety.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 378 Clinical Laboratory Computer Applications 2
Introduction to the use and application of computers in the clinical laboratory.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 400 Urinalysis and Body Fluids 2
The study of routine urinalysis examination, renal function and body fluid testing procedures.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 401 Clinical Physiological Chemistry I 3
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 403 Clinical Physiological Chemistry II 4
Application and theory of methodologies in enzymology, endocrinology and toxicology. Relationship of normal and abnormal laboratory findings in organ functional tests.
PREREQ: MEDT 401.

MEDT 404 Hematology I 2
Quantitative and qualitative study of the formed elements of the blood with emphasis on the normal state, as well as the study of normal and abnormal coagulation and hemostasis.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 405 Hematology II 2
Study of the pathophysiology of erythrocytic and leukocytic disorders and the laboratory findings of these disorders.
PREREQ: MEDT 404.

MEDT 406 Medical Microbiology 3
Study of the occurrence and pathogenesis of human infections and microorganisms associated with humans in health and disease.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 409 Immunohematology I 1
Study of antigen and antibody systems of human red cells and compatibility testing of blood for transfusion.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 410 Principles of Medical Technology Education 1
Educational principles and procedures applicable to teaching clinical laboratory sciences. Topics include preparation of educational objectives, testing and measurement, and use of audiovisual materials.

MEDT 411 Clinical Physiological Chemistry Laboratory I 2
Laboratory exercises that complement the topics covered in MEDT 401.
COREQ: MEDT 401.

MEDT 413 Clinical Physiological Chemistry Laboratory II 2
Laboratory exercises that complement the topics covered in MEDT 403.
COREQ: MEDT 403.

MEDT 414 Hematology I Laboratory 1
Study and implementation of laboratory procedures that correlate with the material taught in MEDT 404.
COREQ: MEDT 404.

MEDT 415 Hematology II Laboratory 2
Study and implementation of laboratory procedures in hematology consistent with the material taught in MEDT 405.
COREQ: MEDT 405.

MEDT 416 Medical Microbiology Laboratory 2
Laboratory study of microorganisms important in the normal flora and infectious diseases of humans.
COREQ: MEDT 406.

MEDT 418 Medical Technology Senior Seminar 0 PF
Readings, case studies, career planning and orientation for clinical education.
RESTRICTIONS: Requires Senior and major status.

MEDT 419 Immunohematology I Laboratory 1
Laboratory procedures consistent with MEDT 409.
COREQ: MEDT 409.

MEDT 420 Immunohematology II 1
Study of blood and component transfusions, their risks, complications and quality assurance. Also blood component therapy and testing of the neonate and adult.
PREREQ: MEDT 409.

MEDT 421 Immunohematology II Laboratory 1
Laboratory procedures consistent with MEDT 420.
COREQ: MEDT 420.

MEDT 430 Diagnostic Bacteriology and Medical Mycology 2
Diagnostic bacteriology, emphasizing the correlation of in vitro and in vivo findings in the diagnosis and treatment of infectious disease, including human mycoses. Identification of pathogenic and nonpathogenic bacteria and fungi in clinical specimens.
PREREQ: MEDT 406 and MEDT 416.
COREQ: MEDT 431.

MEDT 431 Diagnostic Bacteriology and Medical Mycology Laboratory 2
Study and implementation of laboratory procedures that correlate with the material taught in MEDT 430.
COREQ: MEDT 430.

MEDT 461 Management Topics in Medical Technology 1
Introduction to clinical laboratory management with emphasis placed on management styles, information management, technology and materials management, and human resources management.
RESTRICTIONS: Open to Medical Technology majors only.

MEDT 472 Clinical Urinalysis and Serology Practicum 1 PF
Clinical experience in the application of laboratory theory and techniques in urinalysis and serology.
PREREQ: MEDT 376 and MEDT 400.

MEDT 473 Clinical Chemistry Practicum 3 PF
Supervised experience in the application of laboratory theory and techniques in clinical chemistry.
PREREQ: MEDT 403 and MEDT 413.

MEDT 475 Clinical Hematology Practicum 3 PF
Supervised experience in the application of laboratory procedures in hematology.
PREREQ: MEDT 405 and MEDT 415.

MEDT 477 Clinical Microbiology Practicum 3 PF
Supervised experience in the application of laboratory procedures in diagnostic microbiology.
PREREQ: MEDT 430 and MEDT 431.

MEDT 479 Clinical Immunohematology Practicum 3 PF
Supervised experience in the application of laboratory procedures in immunohematology.
PREREQ: MEDT 420 and MEDT 421.

MECH 101 Introduction to Mechanical Engineering 3
Introduces the mechanical engineering profession. Uses a team design project to illustrate the engineering design process. Introduces computational tools.

MECH 112 Statics 3
To recognize, idealize and solve problems involving rigid bodies in static equilibrium using scalar and vector techniques. Introduces free body diagrams, theory of stress, and work-energy principles. Emphasizes the role of statics in the design process.
COREQ: MATH 242 and PHYS 207.

MECH 214 Principles of Mechanics II 3
Intermediate-level development of the kinematics and dynamics of particle systems and rigid bodies. Solution of engineering problems by force, momentum and energy methods with applications to mechanisms, machines, and vehicles. Computer programs.
PREREQ: PHYS 207 and MECHE 213.
COREQ: MATH 302.
MEEG 302 Heat Transfer 3
PREREQ: MEEG307

MEEG 307 Thermodynamics I 3
Basic concepts of thermodynamics including properties of substances, first and second law analysis of systems and control volumes, entropy and availability. Power and refrigeration cycles.
PREREQ: MATH302

MEEG 308 Thermodynamics II 3
PREREQ: MEEG307

MEEG 313 Strength of Materials 4
Analytical study of stresses and deformations and their application to the design of machine and structural elements under axial, torsional, bending and lateral loads. Buckling and energy methods will also be discussed.
PREREQ: MEEG213

MEEG 316 Materials Engineering 3
Mechanical properties and materials behavior under static and dynamic loading; fatigue, creep, wear and corrosion. Properties and applications of metals, ceramics, polymers, and composites. Forming and joining of materials. Practical examples of materials selection in design and the use of materials data bases.
PREREQ: MASC302

MEEG 336 Fluid Mechanics II 3
Compressible flows, isentropic flow, shock waves. Lift and drag, inviscid flows, potential and stream functions, elementary wing theory. Boundary layers. Computational fluid dynamics.
PREREQ: MECH305

MEEG 347 Mechanical Design I 3
Kinematic analysis of machines and mechanisms, kinematic synthesis, cam design, gear train analysis, balancing and machine dynamics.
PREREQ: MEEG125 and MEEG214

MEEG 348 Mechanical Design II 3
Statistical methods in design; theories of failure and design for strength; and design of machine elements.
PREREQ: MEEG347 and MEEG313.

MEEG 361 Applied Engineering Analysis 3
Linear algebra; vector field theory; Fourier series and partial differential equations. Engineering applications.
PREREQ: MATH302.

MEEG 366 Independent Study 1-6

MEEG 391 Engineering Science Laboratory 4
An introduction to engineering experimentation with experiments drawn from subjects without scheduled laboratories such as heat transfer, thermodynamics, vibrations, gas dynamics, etc. Lectures cover topics in treatment of experimental data, error analysis and analytic techniques useful to the experimentalist.
PREREQ: MECH305, MEEG214, MEEG307 and MEEG361.

MEEG 408 Power Generation System Design 3
Design and optimization of fossil fuel and nuclear power plants, cogeneration and peaking systems. Numerical solution combustion problems and thermal balance. Renewable energy, economics and environmental impacts.
PREREQ: MEEG307.

MEEG 410 Experimental Mechanics for Composite Materials 3
Study of the micromechanical and theromechanical response of composite materials. Execution and assessment of experiments conducted to investigate the strength and stiffness characteristics of composite materials and structural elements.
PREREQ: MEEG313.

MEEG 411 Structural Mechanics for Mechanical and Aerospace Engineering 3
Introduction to theory of plates and shells, including analysis of stresses and deformations, vibrations, stability and thermal response of structures typical of modern aerospace and undersea vehicles, pressure vessels and other continuous structures.
PREREQ: MEEG214 and MEEG313.

MEEG 413 Advanced Mechanics of Materials 3
Intermediate topics in the mechanics of deformable media with applications to the analysis and design of machine elements and structures. Inelastic material response and failure analysis will also be discussed.
PREREQ: MEEG313 and MATH302.

MEEG 415 Finite Element Analysis 3
Introduction to the finite element method with applications to structural engineering problems. Direct and variational approaches to element formulation; interpolation functions and isoparametric elements.
PREREQ: MEEG313

MEEG 423 Vibrations 3
Introduction to mechanical vibrations and structural dynamics. Analysis and synthesis by matrix and energy methods. Applications to machine design, vehicle dynamics and shock and vibration isolation.
PREREQ: MEEG213 and MEEG214.

MEEG 427 System Dynamics 3
Introduction to modeling, analysis and control of dynamic systems of mechanical, electrical, electromechanical, thermal and hydraulic nature. Introduction to mechanical vibration analysis, analytical and computer methods for linear systems, transfer functions, feedback controls, stability analysis, and design methods.
PREREQ: MEEG214, MATH302, and MEEG361.

MEEG 432 Aerodynamics 3
PREREQ: MECCH305.

MEEG 434 Air Pollution Processes 3
Physical, chemical, and meteorological processes that govern the photochemistry and transport of gaseous and aerosol air pollutants in the atmosphere. Topics to be covered include air quality, pollutant emissions, gas-phase and liquid-phase chemistry, aerosol dynamics, plumes, turbulent transport in geophysical flows, meteorology, and deposition.
RESTRICTIONS: Requires upper division status in Engineering.

MEEG 438 Air Pollution Control 3
Sources, characteristics and effects of air pollutants. Emphasis on gas cleaning operations for removal of particulate matter, gases and vapors. Design of control processes such as scrubbers, electrostatic precipitators, vapor incinerators, adsorption, absorption and other.
PREREQ: CEE233, MECCH305, CHE325.

MEEG 445 Senior Research I 3
Investigation of an experimental nature to be carried out and reported upon by each student.
RESTRICTIONS: Open to Seniors only.

MEEG 446 Senior Research II 3
Investigation of an experimental nature to be carried out and reported upon by each student.
RESTRICTIONS: Open to Seniors only.

MEEG 447 Design and Systems Synthesis I 3
Design and Systems Synthesis is a year-long sequence. In fall, teams select a project, design concepts and select the best. In spring, teams build a prototype, test it, and improve their designs.

MEEG 448 Design and Systems Synthesis II 3
Design and Systems Synthesis is a year-long sequence. In fall, teams select a project, discover customer's wants, benchmark best practices for each desired function, generate design concepts and select the best. In spring, teams build a prototype, test it, and improve their designs.
PREREQ: MEEG447.

MEEG 466 Independent Study 1-6

MEEG 600 Seminar 1 PF

MEEG 613 Biomechanics 3
Anatomy and physiology including microanatomy and mechanics of bone, cartilage, tendon and muscle. Mechanical modeling of body including joint loads, motion analysis, muscle forces, and interaction with orthopedic devices.
PREREQ: MASC613 and MEEG214.

MEEG 614 Fracture of Materials 3
See MASC614 for course description.

MEEG 615 Mechanical Properties of Materials 3
See MASC615 for course description.

MEEG 616 Composite Materials Structures 3
Introduction to composite materials; anisotropic elasticity and laminate theory; plates and panels of composite materials; beams, columns and rods; composite material shell structures; energy methods; strength and failure theories; adhesive bonding and mechanical fastening; hygrothermal effects; stress analysis, buckling, vibrations and impact.
MEEG 617 COMPOSITE MATERIALS
Fiber and matrix materials, fiber matrix interface, polymer, metal, ceramic and carbon fiber matrix composites, geometric aspects, elastic properties, laminate theory, strength of unidirectional composites, strength of laminates, durability, hybrid composites, flexible composites and textile structural composites

MEEG 623 NONLINEAR DYNAMICS AND CHAOS
Nonlinear dynamics and chaotic phenomenon as applied to natural and engineering systems. Geometric and computational techniques, analytical methods for the qualitative analysis of dynamical systems modeled by differential equations and iterated maps. Planar and non-planar phase space analysis, local and global bifurcation analysis, catastrophes, resonances
PREREQ: MATH302

MEEG 624 CONTROL OF DYNAMIC SYSTEMS
Review of modeling and analysis of dynamic systems. Transient and steady-state responses. Introduction to the theory of feedback controls and stability for continuous time systems. Control system design studies via root locus, frequency domain and state space methods. Brief introduction to digital controls
PREREQ: MEEG214, MEEG361 and MEEG427

MEEG 626 RANDOM VIBRATION
See CIEG616 for course description

MEEG 634 AIR POLLUTION PROCESSES
Physical, chemical, and meteorological processes that govern the photochemistry and transport of gas-phase and aerosol-phase air pollutants in the atmosphere. Topics to be covered include air quality, pollutant emissions, gas-phase and liquid-phase chemistry, aerosol dynamics, plumes, turbulent transport in geophysical flows, meteorology, and deposition
RESTRICTIONS: Requires graduate standing in Engineering

MEEG 636 FLUID MECHANICS MEASUREMENTS
Pointwise velocity measurement including differential pressure measurement, hot-wire anemometry, and laser-Doppler anemometry. Global measurement techniques based on particle imaging and digital image processing. Signal processing, statistics and uncertainty analysis

MEEG 652 FLOW OF VISCOS MATERIALS
Applied fluid dynamics with an emphasis on flow processes dominated by viscous effects. Flow phenomena in polymer, ceramic and composite materials. Modelling of flows in processing and manufacturing and its application to the design of molds and machinery
PREREQ: MEEG302

MEEG 653 MANUFACTURING PROCESSES
Comprehensive view of many manufacturing processes, concepts and technologies. Processes include: packaging, plastic molding, food, pharmaceutical, metal cutting and more. Concepts and technologies include: robotics, numerical control, just-in-time inventory, ergonomics, material handling, quality management and more

MEEG 663 COMPUTER-AIDED DESIGN
Essentials of computer-aided design for engineers: specific topics include theory and application of computer graphics, introduction to data structures, numerical methods for curve and surface fitting and generation, and solid modeling.
PREREQ: MEEG361

MEEG 801 ADVANCED THERMODYNAMICS
Critical examination of thermodynamic principles, equations of state for liquids, gases and mixtures. Interpretation of thermodynamic functions and applications to processes, reactions and equilibrium states

MEEG 802 CONDUCTION HEAT TRANSFER
The solution of problems in conduction in rectangular, cylindrical and spherical coordinates involving heat sinks, sources and varying boundary conditions. Use of Fourier series, Fourier integral, Laplace equations, method of images. Nonlinear problems
PREREQ: MEEG361 or MATH314

MEEG 803 CONVECTION HEAT TRANSFER
Forced convection heat transfer in laminar and turbulent boundary layers including viscous dissipation effects. Forced convection to fluids flowing through channels. Free convection, condensation and evaporation in boundary layers
PREREQ: MEEG361 or MATH314

MEEG 805 SPECIAL TOPICS IN THERMODYNAMICS
Selection of topics that may include thermodynamics of irreversible processes, statistical mechanics, nonequilibrium statistical mechanics, thermodynamics of materials with memory, etc.

MEEG 811 SANDWICH STRUCTURES
Composite and isotropic sandwich structures are studied for stresses, deformations, buckling loads, natural frequencies and dynamic response under mechanical and environmen-tal loads, involving honeycombs, solid, foam, web and truss core sandwich comprising beam, plate, ring and shell structures. Design and minimum weight optimization are treated

MEEG 813 THEORY OF ELASTICITY
Index notation. Concepts of stress and strain. Equations of equilibrium and compatibility and elastic constitutive response. Applications to problems in applied mechanics

MEEG 814 THEORY OF PLASTICITY
PREREQ: MEEG813

MEEG 815 FINITE ELEMENT ANALYSIS
Develops the theory of the finite element method and illustrates its application to problems in solid mechanics, fluid mechanics and heat transfer

MEEG 816 ADVANCED CONTINUUM MECHANICS
A rigorous study of kinematics of finite deformation and the field equations of mechanics and thermodynamics of continua. Tensor analysis employed throughout
PREREQ: MEEG813

MEEG 817 COMPOSITE MATERIALS
Introduction, thermoelastic behavior of laminated composites, statistical strength theories of continuous-fiber composites, short-fiber composites, hybrid composites, two-dimensional textile structural composites, three-dimensional textile structural composites, flexible composites, and nonlinear elastic finite deformation of flexible composites. May be cross-listed with MASC817
PREREQ: MEEG813

MEEG 818 PLATES AND SHELLS IN AEROSPACE STRUCTURES
PREREQ: MEEG813

MEEG 819 PLATES AND SHELLS IN AEROSPACE STRUCTURES
General theory of thin shells from three-dimensional equations of elasticity; shells of revolution under axially symmetric loads; asymmetric loads; thermoelastic effects; general bending theory; membrane theory; inextensional theory; Donnell equations; edge load solutions; orthotropic shells; laminated shells
PREREQ: MEEG813

MEEG 821 ADVANCED DYNAMICS
General principles of spatial dynamics. Lagrangian and Hamiltonian methods. Application to engineering problems

MEEG 822 SERVOMECHANISMS AND CONTROLS
Linear and nonlinear analysis and synthesis of mechanical, electrical, hydraulic and pneumatic systems. Use of Laplace transform and other techniques. Stability and performance criteria

MEEG 823 VIBRATION ANALYSIS
Engineering analysis of the vibrations of machines and structures. Free, forced and random vibrations with emphasis on linear, multidegree-of-freedom systems by matrix and energy methods. Introduction to the Lagrangian method and normal coordinate analysis of complex systems

MEEG 824 STRUCTURAL DYNAMICS AND CONTROL
Reviews vibration analysis of uniform/composite beams, plates and shells. Introduces analysis of structural sound radiation into enclosures and open field. Structural vibration controls and feedback strategies including modal, natural and optimal controls and uniform damping. Reduction of structural sound radiation by adaptive feedback structural controls
PREREQ: MEEG214, MEEG361 and MEEG427

MEEG 830 SPECIAL TOPICS IN FLUID MECHANICS
Offered occasionally and with varying subject matter. Topics may include turbulence, plasma kinetic theory, stability, etc.

MEEG 831 FLUID DYNAMICS
Physical properties of fluids, description of motion, vector and tensor algebra, Navier-Stokes equations, kinetic theory of gases, incompressible viscous flows, boundary-layer theory and turbulence
PREREQ: MEEG361 or MATH314

MEEG 832 FLUID DYNAMICS
Rotational and irrotational flows, potential theory, airfoils, creeping motion, lubrication theory, wave motion, compressibility, supersonic flow and shock waves, and hydrodynamic stability

MEEG 840 SPECIAL TOPICS IN CONTINUUM MECHANICS
Study of advanced principles of continuum mechanics in one or more special fields. Topics selected by instructor. Special subjects may include the general theory of constitutive equations, hyperelasticity, electroelasticity, hypoelasticity, simple and nonsimple fluids, and solutions of special problems in these areas
MILITARY SCIENCE

MLSC 105 Introduction to Leadership I 1
Introduction to leadership principles using case studies, historical perspectives, and hands-on leadership opportunities. Learn to rappel, use a map and compass, understand the basics of physical fitness and familiarize with Army traditions and ceremonies. No military obligation is associated with this course.

MLSC 106 Introduction to Leadership II 1
Continues to build on the basics of MLSC 105. Provides additional leadership opportunities and expands upon leadership theory. Learn basic rifle marksmanship, develop public presentation abilities, and continue physical fitness development. No military obligation is associated with this course.

MLSC 205 Basic Leadership I 1
Enhance student understanding of human behavior, leadership techniques, and managerial planning skills. Builds leadership competencies through leadership opportunities with structured evaluations and feedback. Learn about the various branches and job opportunities in the Army. No military obligation is associated with this course.

MLSC 206 Basic Leadership II 1
Continues to build on the basics of MLSC 205. Learn small unit tactics, how to handle up to ten people in stressful situations with feedback on performance. Further develop skills with map and compass, weapons safety, and learn emergency first aid techniques for basic life saving. No military obligation is associated with this course.

MLSC 215 Leader Development 4
An introductory six-week off-campus, hands-on leadership education and assessment course. Real life individual and collective leadership challenges and opportunities. All expenses paid. Multiple scholarship opportunities.

MLSC 315 Leader Evaluation 4
An advanced six-week off-campus, hands-on leadership education and assessment course. Real life individual and collective leadership challenges and opportunities. All expenses paid.

MLSC 316 Nursing Leadership 4
An advanced six-week off-campus, hands-on leadership training and assessment course, specializing in Nursing skills. Two weeks are spent in an Army education scenario then five weeks are spent as a Junior Nurse in an Army hospital/medical center. All expenses paid.

MLSC 365 Military Studies 3
Selected topics in American Military History, current military trends and future military requirements.

MLSC 366 Independent Study 1-3

MUSEUM STUDIES

MSST 403 History, Philosophy, Functions and Future of Museums 3
Introduction to philosophy, purposes, structure, historical development and future of museums, and botanical and zoological gardens. Examines functions of collection, conservation, research, exhibition/interpretation, and social/cultural services; museum field growth. May be cross-listed with ARTH 403 and/or HIST 403.

MSST 444 Technology of Cultural Materials: Ceramics and Glass 3
Nature of raw materials, processing methods, chemistry and structure of finished products, deterioration mechanisms and effects, scientific methods of analysis, and case studies of ancient and historic ceramic and glass objects from the point of view of technology, aesthetics, and function. Case studies from a wide variety of cultural traditions. May be cross-listed with ANTH 444 and/or ART 444.

MSST 445 Technology of Cultural Materials: Metals 3
Nature of raw materials, processing methods, chemistry and structure of finished products, deterioration mechanisms and effects, scientific methods of analysis, and case studies of ancient and historic metal objects from the point of view of technology, aesthetics and function. Case studies from a wide variety of cultural traditions. May be cross-listed with ANTH 445 and/or ART 445.

MSST 605 History of Theories in Material Culture 3
See EAMC 605 for course description.

MSST 606 Issues in American Material Culture 3
See EAMC 606 for course description.

MSST 607 Readings in American Material Life 3
See HIST 607 for course description.

MSST 629 Seminar in Historic Preservation 3
See UAP 629 for course description.

MSST 644 Technology of Cultural Materials: Ceramics and Glass 3
Nature of raw materials, processing methods, chemistry and structure of finished products, deterioration mechanisms and effects, scientific methods of analysis, and case studies of ancient and historic ceramic and glass objects from the point of view of technology, aesthetics and function. Case studies from a wide variety of cultural traditions. May be cross-listed with ANTH 444 and/or ART 445.

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MUSEUM STUDIES

MSST 645 TECHNOLOGY OF CULTURAL MATERIALS: METALS 3
Nature of raw materials, processing methods, chemistry and structure of finished prod-
ucts, deterioration mechanisms and effects, scientific methods of analysis, and case stud-
ies of ancient and historic metal objects from the point of view of technology, aesthetics,
and functions. Case studies from a wide variety of cultural traditions. May be cross-listed
with ARTH645 and/or ARTC645

MSST 680 STUDIO IN THE MATERIALS AND TECHNIQUES OF DRAWING IN THE WEST 3
Lecture-studio presentation on materials and tools, supports and techniques of wet and
dry media drawing in the West from about the year 1400 to the present. Topics include
the development and manufacture of paper, pens, brushes, inks, watercolor paint, char-
coal, metal points, graphite pencils, natural and fabricated chalks, crayons, pastels,
erasers and fixatives. Studio reconstructions of masterworks, lectures and library
research. May be cross-listed with ART 682, ARTC680 and/or ARTH680
RESTRICTIONS: Requires permission of instructor

MSST 681 MATERIALS AND TECHNIQUES OF THE CONTEMPORARY PAINTER AND DRAFTSMAN 3
Twentieth-century artists materials, Topics: acrylic emulsion and acrylic solution alkyl
cresin, PVA paints, ultramarine, synthetic fiber canvas, paper, panels, oil pastels, pastel
sticks, felt tip markers, colored inks and pens; airbrush spray gun; and non-art materials
Potential health hazards. Conservation topics: pH, lightfastness, adhesion and storage environments. May be cross-listed with ART 681, ARTC681 and/or ARTH681

MSST 685 COLOR MIXING AND MATCHING 3
Lecture-studio presentation covering analytical and practical aspects of mixing and
matching colorants without instrumentation. Pigments, dyes and the manufacture of paint
studied. Major topics include color interaction, and the Munsell system of color descrip-
tion. May be cross-listed with ART 685 and/or ARTC685
RESTRICTIONS: Requires permission of instructor

MSST 688 STUDIO MATERIALS AND TECHNIQUES OF PAINTING I 3
Major materials including tools, supports and techniques of architectural painting,
manuscript illumination and panel painting in encaustic, watercolor, and egg tempera
from about 1500 BC to AD 1500. Major topics include true fresco and egg tempera
painting. Studio reconstructions, lectures and library research. May be cross-listed
with ART 688, ARTC688 and/or ARTH688
RESTRICTIONS: Requires permission of instructor

MSST 689 STUDIO MATERIALS AND TECHNIQUES OF PAINTING II 3
Major masters and the materials, tools and techniques of indirect and direct oil painting.
Time frame: 1500-1900 Major topics include the development of canvas, brushes, oil
paint, mediums, varnishes, solvents and the complex relationship between indirect and
direct techniques. Includes studio reconstruction of masterworks, lectures and library
research. May be cross-listed with ART 689, ARTC689 and/or ARTH689
RESTRICTIONS: Requires permission of instructor

MSST 690 STUDIO IN THE MATERIALS AND TECHNIQUES OF PRINTMAKING I 3
Major masters and the materials, tools, and techniques of relief, planographic and
intaglio printmaking. Time frame: ca 1400-1920 Major topics include woodcut, cop-
perplate engraving, etching, drypoint, aquatint, mezzotint, lithograph and wood engrav-
ing. Studio reconstructions, lectures and library research. May be cross-listed with ART
690, ARTC690 and/or ARTH690
RESTRICTIONS: Requires permission of instructor

MSST 801 MUSEUM CURATORSHIP: COLLECTIONS MANAGEMENT 3
A course on collections management theory and practices that focuses on the administra-
tion, handling, physical care, recording and study of museum collections. Combines
classroom instruction, demonstrations and field trips with "hands on" projects in the Uni-
versity Gallery and other museums
RESTRICTIONS: Open to graduate students only

MSST 802 LEADERSHIP AND MANAGEMENT OF MUSEUMS 3
Treats governance and administrative operations of museums, highlighting planning,
legal and organizational structure, trustees and directors, personnel management,
finance, development, marketing, merchandising, maintenance and security, libraries
and archives, publishing, computer applications, public programming, and professional
standards and ethics.
RESTRICTIONS: Open to graduate students only. Includes field trips and team task force
projects

MSST 804 MUSEUM INTERNSHIP 3
Internship practice in administration, collections management, exhibition and interpreta-
tion at museums and related institutions. Students spend ten full weeks, or the equivalent,
at the University Gallery, Winterthur Museum, Hagley Museum, Longwood Gardens or
other acceptable institution. May be cross-listed with HIST804
RESTRICTIONS: Open to graduate students only. Requires at least one semester course
in Museum Studies and permission of instructor

MSST 805 HISTORICAL PROPERTIES 3
Administration and interpretation of historical properties, including historic site surveys,
preservation research, building restoration, conservation techniques and the establish-
ment and attainment of interpretive objectives. Field trips to area historic sites. Combines
classroom instruction and work projects at area historic sites
RESTRICTIONS: Open to graduate students only

MSST 807 MUSEUM CURATORSHIP: TEMPORARY AND ECONOMICAL EXHIBITS 3
Focuses on the planning, designing and fabrication of economical museum exhibits for
changing exhibition rooms and alternative spaces. Emphasizes time, money and labor-
saving techniques. Students design and produce a temporary exhibit in the University
Gallery or in a local museum
RESTRICTIONS: Open to graduate students only

MSST 808 MUSEUM EDUCATION AND INTERPRETATION 3
The theory, strategies, practices, evaluation and administration of learning in a museum
environment with emphasis on interpretation of collections through a variety of instruc-
tional means: lectures, discussions, field trips, program planning, curriculum develop-
ment, proposal writing, audience studies, practice teaching and special project work
with area museums
RESTRICTIONS: Open to graduate students only

MSST 810 ENVIRONMENTAL INSTITUTION MANAGEMENT 6
Seminar sessions at Delaware Nature Society headquarters with staff and guest lecturers,
including attorneys, investment counselors and museum administrators. Experiences at
area environmental institutions. Covers goal definition, long-range planning,
building/grounds management, programming, fund raising, financial management, per-
sonnel policies, volunteers, publicity and publications, legal considerations and conser-
vation/preservation roles.
RESTRICTIONS: Open to graduate students only. Permission of instructor required

MUSIC EDUCATION

MUED 279 PRACTICUM IN MUSIC EDUCATION 3
Observation of differing elementary and secondary school music program structures;
studies and observations of children's growth and development patterns in terms of music
learning; and experience in music instructional methods
RESTRICTIONS: Requires permission of instructor

MUED 336 CHORAL CONDUCTING 2
Specific problems in conducting choral literature. Comparative analysis of works to be
conducted
PREREQ: MUSC335
RESTRICTIONS: For vocal music education majors

MUED 337 INSTRUMENTAL CONDUCTING 2
Specific problems in conducting instrumental literature. Practical application of conduct-
ing techniques through supervised conducting of instrumental ensembles.
PREREQ: MUSC335
RESTRICTIONS: For instrumental music education majors

MUED 366 INDEPENDENT STUDY 1-3

MUED 379 MUSIC IN THE ELEMENTARY AND JUNIOR HIGH (OR MIDDLE) SCHOOL 3
Introduction to music materials and approaches through clinical experiences
PREREQ: MUED279
RESTRICTIONS: For music majors

MUED 381 MUSIC IN EARLY CHILDHOOD 3
Methods and materials for developing musical skills and understanding of children ages
three to eight. Includes clinical experience.
RESTRICTIONS: For majors in College of Human Resources, Education and Public Policy

MUED 385 MUSIC FOR THE SPECIAL LEARNER 3
Analysis of types of exceptional learners and analysis of music materials and methods
appropriate for special learners
RESTRICTIONS: For elementary education majors and early childhood development majors

MUED 390 MUSIC IN THE ELEMENTARY SCHOOL 3
Introduction to music materials and approaches through clinical experiences
RESTRICTIONS: For elementary education and child development majors

MUED 479 SECONDARY MUSIC MATERIALS AND APPROACHES 3
Procedures and materials used for teaching music in the secondary school
PREREQ: MUED279
RESTRICTIONS: Requires permission of instructor

MUED 559 FIELD WORKSHOP 1-4
MUED 574 MUSIC CONCEPTS IN THE ELEMENTARY SCHOOL 3
Methods and materials for developing children's understanding of music concepts by involvement in listening to, performing and describing musical sound events
REstrictions: For experienced teachers.

MUED 575 MUSIC IN EARLY CHILDHOOD 3
Advanced study of musical content and techniques of teaching
REstrictions: For experienced teachers.

MUED 576 GENERAL MUSIC: MIDDLE SCHOOL AND HIGH SCHOOL 3
Methods and materials for involving students in musical experiences
REstrictions: For experienced teachers.

MUSIC

MUSC 061 PRIVATE STUDY 1-8 R
REstrictions: Requires audition and departmental placement tests. Credits do not apply toward bachelor's degree.

MUSC 062 PRIVATE STUDY 1-8 R
Prerequisite: MUSC 061
REstrictions: Credits do not apply toward bachelor's degree.

MUSC 095 BASIC HARMONY AND EAR-TRAINING 3 R
Designed to establish or re-establish basic harmony and ear-training skills
REstrictions: For beginning music majors and minors. Requires Musicality Test. Credits do not apply toward degree.

MUSC 100 RECITAL ATTENDANCE 0 PF
A recital experience; see Department of Music Student Handbook for details.
REstrictions: May be repeated.

MUSC 101 APPRECIATION OF MUSIC 3
Introduction to Western music literature through a nontechnical presentation of various musical styles and forms.

MUSC 102 APPRECIATION OF MUSIC 3
Music literature through a nontechnical presentation of various musical styles and forms. Continuation of MUSC 101 with emphasis on the larger forms - symphonies, operas, oratorios, concertos - and the 20th century.
Prerequisite: MUSC 101

MUSC 103 INTRODUCTION TO OPERA 3
Explores the world of opera including categories of singers; types of operas, e.g. opera seria, opera buffa, singspiel; and the roles of the chorus. Includes experience seeing an opera performed live.

MUSC 104 INTRODUCTION TO OPERA II 3
Introduction to opera, concentrating on opera comique, singspiel, opera seria, and Wagnerian music drama. Explores philosophies associated with music in the context of opera. Time span covered is 1607 to present.

MUSC 105 FUNDAMENTALS OF MUSIC I 3
Introduction to the elements of music theory including ear training, music reading and harmony with keyboard application.
REstrictions: Designed for nonmusic majors.

MUSC 106 FUNDAMENTALS OF MUSIC II 3
Continuation of MUSC 105. Survey and analytical approach to music styles. Composing original works for voice and instruments.
Prerequisite: MUSC 105

MUSC 107 HISTORY OF ROCK 3
The study of various styles of Rock music. Introduction to folk, country, blues, and jazz as predecessors to Rock. Intended for the non-music major. No music reading skills required.

MUSC 108 UNIVERSITY SINGERS 1
Members enter by audition. University Singers is a chorus of sopranos and altos that performs its own concerts and may also perform with other choirs.
REstrictions: Requires permission of instructor. May be repeated for credit.

MUSC 109 CHORAL UNION 1
Members enter by audition. Choral Union is a chorus of 100+ voices that rehearses ensemble on Monday nights. The Union performs large-scale choral works. Smaller sections perform independently as well.
REstrictions: Requires permission of instructor. May be repeated for credit.

MUSC 110 CHORALE 1
Members enter by audition. Chorale is the university's most select chorus of mixed voices.
REstrictions: Requires permission of instructor. May be repeated for credit.

MUSC 113 MARCHING BAND 1
REstrictions: Contact the Director for detailed information. All interested percussionists, color guard and twirlers must audition. May be repeated for credit.

MUSC 114 SYMPHONIC BAND 1
The ensemble performs standard concert literature as well as new compositions. During fall semester the ensemble meets one day a week and performs one full concert. The ensemble participates in the Department of Music's CALLIOPE concert.
REstrictions: Requires audition and permission of the instructor. May be repeated for credit.

MUSC 115 WIND ENSEMBLE: ORCHESTRAL WINDS AND PERCUSSION 1
The Wind Ensemble is a select 45-member group of woodwind, brass and percussion players that performs original band music, chamber music and transcriptions. The Orchestral Winds and Percussion consists of select players from the Wind Ensemble, who form the wind and percussion sections of the University Orchestra.
REstrictions: The Wind Ensemble requires audition and may be repeated for credit. The Orchestral Winds and Percussion may be repeated for credit.

MUSC 116 JAZZ ENSEMBLE 1
Study and performance of the diverse styles characteristic of the medium.
REstrictions: May be repeated for credit.

MUSC 117 UNIVERSITY ORCHESTRA 1
Rehearsal and performance of representative works for orchestra.
REstrictions: Requires audition. May be repeated for credit.

MUSC 118 PERCUSSION ENSEMBLE 1
Study and performance of works for percussion instruments.
REstrictions: Requires audition. May be repeated for credit.

MUSC 119 GAMELAN TRADITIONS OF INDONESIA 3
A performance-oriented introductory course in the "knobbed gang" musical traditions of Java and Bali. Includes traditional as well as contemporary literature study, theoretical analysis and historical overview, with performance experience.

MUSC 121 GAMELAN ENSEMBLE 1
Gamelan is the largest instrumental ensemble from Southeast Asia, and is considered the "orchestra of the Eastern world." This is a performing ensemble, dealing with traditional and contemporary Japanese and Balinese literature.
REstrictions: Open to anyone without prior musical experience. May be repeated for credit.

MUSC 125 COLLEGIUM MUSICUM 1
Ensemble for the performance of instrumental and vocal music of the Medieval, Renaissance and Early Baroque periods. Size, instrumentation and repertoire for the group varies from semester to semester dependent upon resources at hand, players' skills and other factors.
Prerequisite: audition.

MUSC 161 PRIVATE STUDY 1-8
The student adds to the course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes one contact-hour studio class.
REstrictions: Contact the Director for detailed information. All interested percussionists, color guard and twirlers must audition. May be repeated for credit.

MUSC 162 PRIVATE STUDY 1-8
The student adds to the course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes one contact-hour studio class.
Prerequisite: MUSC 161
REstrictions: Contact the Director for detailed information. All interested percussionists, color guard and twirlers must audition. May be repeated for credit.

MUSC 171 DICTION: ENGLISH AND ITALIAN 1
Study of pronunciation rules for singing in English and Italian. Includes practical core
Core: Enrollment in applied study.

MUSC 173 CLASS VOICE 1
Fundamentals and techniques of singing.
REstrictions: For nonmajors.

MUSC 174 CLASS VOICE: BEGINNING 1
Fundamentals of singing for the nonvocal music major. Study of basic technique, repertoire and function of vocal mechanism.
REstrictions: Requires permission of instructor for nonmajors. Requires one semester of University vocal experience.

MUSC 175 CLASS PIANO: ELEMENTARY 1
Beginning piano primarily for the vocal or instrumental music major. Basic techniques, reading, transposition and playing by ear.
Prerequisite: MUSC 105 or Co-requisite of MUSC 195. Preference for enrollment will be given to music majors.
REstrictions: None.

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MUSC 176 CLASS Piano: Elementary II 1
A continuation of MUSC175. Scale and arpeggio playing, keyboard harmony, repertoire of pieces appropriate to technical ability
PREREQ: MUSC175 and MUSC195

MUSC 177 CLASS Guitar I 1
Introduction to the fundamentals of guitar technique and note reading for non-music majors. Topics include guitar history, repertoire, scales and exercises with an emphasis on classical as well as folk music. Music Education majors may also find this course particularly useful for classroom teaching.

MUSC 178 CLASS Guitar II 1
A continuation of Class Guitar I with a stronger emphasis on ensemble playing and development of a repertoire
PREREQ: MUSC177.

MUSC 181 APPLIED Jazz Styles/Techniques I 2
Private studio instruction covering techniques and interpretation used in jazz performance. Examines a cross-section of styles and repertoire.
RESTRICTIONS: Requires audition.

MUSC 185 EAR Training and Sight Singing I 2
Techniques of sight singing and music reading skills. Development of ability in the aural recognition of melody, harmony and rhythm.
COREQ: MUSC195
RESTRICTIONS: Requires permission of instructor.

MUSC 186 EAR Training and Sight Singing II 2
Techniques of sight singing and music reading skills. Development of ability in the aural recognition of melody, harmony and rhythm.
PREREQ: MUSC185 and MUSC195
COREQ: MUSC196

MUSC 189 PIANO for the Classroom 1
Functional piano skills.
RESTRICTIONS: For teachers of elementary school children.

MUSC 190 JAZZ Improvisation 3
Techniques of harmonic, rhythmic and melodic embellishment and improvisation in jazz.
RESTRICTIONS: Requires intermediate level of performance.

MUSC 193 Sight Reading at the Keyboard I 1
Techniques for improving coordination and musical comprehension when playing from sight at the keyboard.
RESTRICTIONS: For keyboard majors.

MUSC 194 Sight Reading at the Keyboard II 1
Continuation of MUSC193.
PREREQ: MUSC193

MUSC 195 Harmony I 3
COREQ: MUSC185.
RESTRICTIONS: Requires permission of instructor.

MUSC 196 Harmony II 3
Continuation of harmony: diatonic through chromatic harmony with keyboard application. Chord structures and functional relationships. Basic melodic and contrapuntal compositional techniques. Writing, playing and analysis.
PREREQ: MUSC185 and MUSC195
COREQ: MUSC186

MUSC 197 Jazz Harmony 3
Study of elementary aspects of melody, harmony, texture, dynamics, rhythm and form in selected jazz and American popular literature. Development of elementary aural-perceptual and compositional skills related to jazz and American popular music.
PREREQ: MUSC105.

MUSC 205 Music of the Non-Western World 3
Survey of non-Western world musical cultures utilizing textbook, reprinted reserve articles, films and in-class performance/demonstrations. Goal is the understanding and appreciation of various world musics
PREREQ: MUSC105.

MUSC 206 Music of China, Korea and Japan 3
Systematically examines the origin and historical development of the musical cultures of the Far East. Studies how the musical and cultural influence of Chinese musical culture has had an enormous impact on the development of such cultures in Korea and Japan

MUSC 207 History of Jazz 3
Chronological study of the style changes in jazz from the late 19th century to the present. Emphasis on the sociological, economic and technological influences of the period and on the principal personalities who have been primarily responsible forchange.
PREREQ: MUSC105

MUSC 208 History of the American Musical Theatre 3
The musical-dramatic forms of the 18th, 19th and 20th centuries in the United States and their impact on the modern musical theatre. Complete works read in class and compared to a series of criteria found in successful modern shows. Comparison of older and current works. May be cross-listed with THEA208

MUSC 209 History of Spanish Music 3
Covers the most outstanding traditions of Spanish music, including Arab-influenced Andalusian music, 12th-century music, schools of the 'Renacimiento', 17th-century court music, the 'Zarzuela', 19th-century Nationalism, and the most modern tendencies of the 20th-century.
RESTRICTIONS: Taught abroad only.

MUSC 211 Introduction to Music History 3
Survey of selected works in music history with emphasis on selected basic terminology, forms and style changes, through score reading and listening.
PREREQ: MUSC195

MUSC 214 STRINGED INSTRUMENTS Class: Violin, Viola, Cello, Bass 1
Development of performing and teaching skills.

MUSC 215 HIGH Brass Instruments Class 1
Development of performing and teaching skills.
RESTRICTIONS: MUSC215 and MUSC216 to be taken consecutively in one academic year.

MUSC 216 Low Brass Instruments Class 1
Development of performing and teaching skills.
RESTRICTIONS: MUSC215 and MUSC216 to be taken consecutively in one academic year.

MUSC 217 Woodwind Instruments Class I 1
Development of performing and teaching skills.
RESTRICTIONS: MUSC217 and MUSC218 to be taken consecutively in one academic year.

MUSC 218 Woodwind Instruments Class II 1
Development of performing and teaching skills.
RESTRICTIONS: MUSC217 and MUSC218 to be taken consecutively in one academic year.

MUSC 219 Percussion Instruments 1
Development of performing and teaching skills.

MUSC 241 Accompanying Chamber Music: Piano 1
Accompanying vocalists and instrumentalists in the performance of chamber music with keyboard.
PREREQ: Sight-Reading Placement Test.
RESTRICTIONS: First course of a six-semester sequence.

MUSC 242 Accompanying Chamber Music: Piano 1
Accompanying vocalists and instrumentalists in the performance of chamber music with keyboard.
PREREQ: MUSC241.

MUSC 261 Private Study 1-8
The student adds to the course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes a one-contact-hour studio class.
PREREQ: MUSC142.
RESTRICTIONS: Contact department to register for correct number of credit hours.

MUSC 262 Private Study 1-8
The student adds to the course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes a one-contact-hour studio class.
PREREQ: MUSC261.
RESTRICTIONS: Contact department to register for correct number of credit hours.

MUSC 271 DICTION: German 1
A study of pronunciation rules for singing in German. Includes practicum.
COREQ: Enrollment in applied study.

MUSC 272 DICTION: French 1
A study of pronunciation rules for singing in French. Includes practicum.
COREQ: Enrollment in applied study.

MUSC 273 CLASS Voice: Intermediate 1
Basic voice study. Repertoire technique and vocal problems isolated through performance, research and discussion.
PREREQ: MUSC173 and MUSC174.
RESTRICTIONS: One year of university-level vocal experience acceptable in lieu of prerequisites. For music majors and students with exceptional vocal ability.

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MUSIC 275 CLASS PIANO: INTERMEDIATE 1 1
Piano techniques applicable to the levels and needs of the students; a continuation of reading and transcription; and improvisation and repertory of grade two pieces
PREREQ: MUSC176 and MUSC196
RESTRICTIONS: For vocal or instrumental music majors with some background in piano playing.

MUSIC 276 CLASS PIANO: INTERMEDIATE II 1
A continuation of MUSC275
PREREQ: MUSC275

MUSIC 281 APPLIED JAZZ STYLES/TECHNIQUES II 2
Private studio instruction covering techniques and interpretation used in jazz performance. Examines a cross-section of styles and repertoire
PREREQ: MUSC181
RESTRICTIONS: Requires audition

MUSIC 285 ADVANCED EAR TRAINING AND SIGHT SINGING I 2
Continuation of MUSC185 and MUSC186
PREREQ: MUSC186 and MUSC196
COREQ: MUSC295

MUSIC 286 ADVANCED EAR TRAINING AND SIGHT SINGING II 2
Continuation of MUSC185, MUSC186 and MUSC285
PREREQ: MUSC285 and MUSC295
COREQ: MUSC296

MUSIC 287 MUSIC TECHNOLOGY I 3
Overview and experience with commercially-available music-related hardware and software. Hardware includes IBM and Macintosh microcomputers, electronic keyboards and tone generators incorporating Musical Instrument Digital Interface (MIDI), digital recording systems, CD-ROM and videodisc Software includes sequencers, notation packages, interactive composers, educational programs and hypermedia applications
PREREQ: MUSC105 or MUSC195

MUSIC 293 JAZZ IMPROVISATION I 3
A comprehensive study of jazz improvisation vocabulary and techniques which will result in the student being able to improvise in a stylistically acceptable manner over a given set of chord progressions.
PREREQ: MUSC197

MUSIC 294 JAZZ IMPROVISATION II 3
An advanced study of jazz improvisation vocabulary and techniques which will result in the student being able to improvise in a stylistically acceptable manner.
PREREQ: MUSC293

MUSIC 295 ADVANCED HARMONY I 3
PREREQ: MUSC186 and MUSC196
COREQ: MUSC286

MUSIC 296 ADVANCED HARMONY II 3
Continuation of MUSC295. Study of late 19th- and 20th-century harmony, techniques and styles. Continuation of instrumentation. Original compositions
PREREQ: MUSC285 and MUSC295
COREQ: MUSC286

MUSIC 301 JUNIOR RECITAL 0 PF
A 30-minute public recital
RESTRICTIONS: Requires Junior status and permission of instructor.

MUSIC 302 WOMEN IN MUSIC: AN ALTERNATE SURVEY 3
Survey of women's contributions to Western art music traditions from 12th century to present day through the study of women as composers, performers, patrons, and as the subject of musical expression. Explores cultural systems that have alternately encouraged and suppressed women's creativity. May be cross-listed with WOMS302
PREREQ: MUSC101 or MUSC111

MUSIC 303 CHAMBER MUSIC LITERATURE 3
Chamber music written for various combinations from the Baroque period to the present
PREREQ: MUSC211, or MUSC101 and MUSC102

MUSIC 305 THE SYMPHONY 3
The development of the symphony from the early 18th century to the present
PREREQ: MUSC211 or MUSC101

MUSIC 307 MUSIC IN AMERICAN CULTURE 3
Music in the United States from 1620 to 1875: Folk music in an expanding nation. The evolution of jazz.

MUSIC 308 MUSIC IN AMERICAN CULTURE 3
The development of the United States as an international leader in musical composition, performance and technology 1865 to the present. Also, the history of the Broadway musical.

MUSIC 309 PATTERNS OF PATRONAGE 3
Examines the creation, performance and transmission of music within broader context of the economic, political, social and technological environment. Emphasizes interdependence of musical activity and its patrons, including traditional functions of state, church, civic, mercantile, private, and contemporary interaction with public, private, and third sectors.
RESTRICTIONS: Not open to freshmen. Requires permission of instructor

MUSIC 311 MUSIC HISTORY: 400 THROUGH 1600 3
The history of musical style and theory in the Middle Ages (5th through 14th centuries) and the Renaissance (15th and 16th centuries)
PREREQ: MUSC211 or MUSC101

MUSIC 312 MUSIC HISTORY: 1600 THROUGH 1827 3
The history of musical style and theory during the Baroque period (1600-1750), and the Classic period through the death of Beethoven (1827)
PREREQ: MUSC211 or MUSC101

MUSIC 313 MUSIC HISTORY: 1825 TO THE PRESENT 3
The Romantic era, Impressionism and the 20th century. Musical thought and style from 1825 to the present
PREREQ: MUSC211 or MUSC101

MUSIC 321 ENSEMBLES: INSTRUMENTAL, PIANO, OR VOCAL 1
Performance of chamber literature for instrument, piano or voice
RESTRICTIONS: May be repeated for credit

MUSIC 327 GERMAN LIEDER 2
Literature survey of the standard vocal repertoire of the German tradition. Includes examples of the works of such composers as Schubert, Brahms, Schumann, Wolf and Strauss
RESTRICTIONS: Open to Juniors and Seniors

MUSIC 328 CHORAL LITERATURE 3
Study of style, structure and interpretations of representative choral works, including large and small forms composed since 1500
PREREQ: MUSC211.

MUSIC 331 ORCHESTRATION 2
Orchestral and band arranging; review of instrumental ranges and colors; scoring for small ensembles; special problems in scoring accompaniments. Final arrangement performed by a University ensemble
PREREQ: MUSC296

MUSIC 335 BASIC CONDUCTING 2
The principles of conducting and score reading
PREREQ: MUSC286 and MUSC296

MUSIC 339 VIENNESE COMPOSERS 3
Selected Viennese composers including Mozart, Beethoven, Schubert, and the Strauss. Emphasis of the course will be on Viennese music A combination of Music History and Music Appreciation. This course is offered in the Semester in Vienna Program only
RESTRICTIONS: Taught in Semester in Vienna program only

MUSIC 341 ACCOMPANYING CHAMBER MUSIC: PIANO 1
Accompanying vocalists and instrumentalists and in the performance of chamber music with keyboard
PREREQ: MUSC242

MUSIC 342 ACCOMPANYING CHAMBER MUSIC: PIANO 1
Accompanying vocalists and instrumentalists and in the performance of chamber music with keyboard
PREREQ: MUSC341

MUSIC 345 HISTORY OF THEATRE: AMERICAN MUSICAL THEATRE 3
See THEA345 for course description

MUSIC 361 PRIVATE STUDY 1-8
The student adds to course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes a one-contact-hour studio class
PREREQ: MUSC262
RESTRICTIONS: Contact department to register for correct number of credit hours.

MUSIC 362 PRIVATE STUDY 1-8
The student adds to course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes a one-contact-hour studio class
PREREQ: MUSC361
RESTRICTIONS: Contact department to register for correct number of credit hours.
MUSC 363 Keyboard Literature I 3
Style, structure and technical performance of keyboard music from the 17th century to the present
PREREQ: MUSC262

MUSC 364 Keyboard Literature II 3
Intensive study of one composer or style period from the keyboard repertory. Content varies from year to year
PREREQ: MUSC363

MUSC 366 Independent Study 1-3

MUSC 387 Music Technology II 3
Explores intermediate to advanced applications of music technology including professional level implementation of MIDI hardware and software. Topics include multipoint interfaces, synchronization, MIDI sequencing and notation techniques, multimedia, and music related internet services. Additional topics may be examined depending on student experience
PREREQ: MUSC287

MUSC 388 Principles of Music Industry Practice 3
Offers an understanding of the fundamental workings of the music industry. Examines theory/practice of core principles, focusing on provisions of copyright law, standard agreements, and the influence of professional organizations. Emphasis on framework for interaction among writers, artists, performers, publishers, record companies, producers.

MUSC 389 Elements of Music Management 3
Introduces principles involved in planning and management for performing arts organizations. Includes basic concepts of project development and implementation, production issues for public performances, communication skills and marketing techniques, utilization of new technologies, and aspects of resource planning and advocacy
RESTRICTIONS: Requires permission of instructor

MUSC 390 Honors Colloquium 3
See ARSC390 for course description

MUSC 392 Contrapuntal Writing 2
Contrapuntal techniques with emphasis on 16th- and 18th-century styles and forms
PREREQ: MUSC295

MUSC 393 Keyboard Harmony 2
A practical course for the development of facility in applying knowledge of harmony to the keyboard. Emphasis on melody harmonization and improvisation
PREREQ: MUSC296
RESTRICTIONS: Requires two years of class or private piano

MUSC 394 Keyboard Harmony II 2
An advanced practical course for the development of facility in applying knowledge of harmony to the keyboard
PREREQ: MUSC393

MUSC 395 Form Analysis 3
Structure of homophonic and polyphonic music representing different periods of musical history
PREREQ: MUSC296

MUSC 397 Contemporary Harmony 3
Styles, harmonic principles and techniques in 20th-century music
PREREQ: MUSC296

MUSC 401 Senior Recital 0 PF
A 60-minute public recital
RESTRICTIONS: Requires Senior status.

MUSC 407 Contemporary Music Literature 3
Analysis of styles and techniques of contemporary composers beginning with compositions of the late 1950s
PREREQ: MUSC313 or permission of instructor

MUSC 420 Advanced Composition 3
Creative writing in the vocal and instrumental media with individual and group criticism
PREREQ: MUSC397
RESTRICTIONS: May be repeated for up to nine credit hours

MUSC 421 Special Projects in Music Theory 3
Theory majors do research and study under guidance of a faculty advisor on an approved topic for a formal paper to be presented at a public lecture
PREREQ: MUSC485

MUSC 427 French Art Song 2
A literature survey of the standard vocal repertoire of the French tradition. Includes examples of the works of such composers as Fauré, Debussy, Duparc and Poulenc
RESTRICTIONS: Requires Junior or Senior status

MUSC 428 Twentieth-Century Art Song 2
A literature survey of the standard vocal repertoire of the 20th Century. Includes examples of the works of such composers as Barber, Britten, Schonberg, Ives, Vaughan Williams and Rorem
RESTRICTIONS: Requires Junior or Senior status

MUSC 441 Accompanying Chamber Music Piano 1
Accompanying vocalists and instrumentalists and in the performance of chamber music with keyboard
PREREQ: MUSC342

MUSC 442 Accompanying Chamber Music Piano 1
Accompanying vocalists and instrumentalists and in the performance of chamber music with keyboard
PREREQ: MUSC441

MUSC 461 Private Study 1-8
The student adds to course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes a one-contact-hour studio class
PREREQ: MUSC362
RESTRICTIONS: Contact department to register for correct number of credit hours

MUSC 462 Private Study 1-8
The student adds to course title the branch of study elected: piano, organ, voice or an orchestral instrument. Includes a one-contact-hour studio class
PREREQ: MUSC461
RESTRICTIONS: Contact department to register for correct number of credit hours

MUSC 464 Internship 1-3
Students are placed with performing arts organizations or music businesses both within and outside the state. Requires participation in Careers Colloquium, an informal series of lectures/roundtable discussions with guests currently employed in the music industry or with performing arts organizations
RESTRICTIONS: Open to Music Management Studies minors only

MUSC 466 Independent Study 1-3

MUSC 480 Vocal Pedagogy 3
Designed for those who plan to work with the singing voice. Includes vocal research, comparative pedagogy, observation of teaching and practical teaching experience

MUSC 485 Pedagogy of Theory 3
Materials, organization, techniques and problems of teaching high school and basic college theory courses. Attention to sight singing, ear training, keyboard and form and analysis materials. Observation and teaching of theory courses at the Freshman and Sophomore levels
PREREQ: MUSC286 and MUSC296

MUSC 489 Opera Workshop 1-3
Dramatic and musical preparation of operatic roles through the production of a complete opera/operetta
RESTRICTIONS: Admission by audition, with permission of private instructor, and preference given to vocal performance majors.

MUSC 495 Analysis for Performance 3
Examination of structural, melodic, rhythmic, harmonic and textural aspects of selected music literature and their significance in artistic performance
PREREQ: MUSC296

MUSC 561 Advanced Private Study 1-4
Advanced instruction in voice or instrument. The student adds to course title the branch of study elected: piano, organ, voice, or an orchestral instrument, e.g., Private Study (Piano)
PREREQ: MUSC462

MUSC 601 Master's Recital 2 PF
A sixty-minute public recital
PREREQ: MUSC662

MUSC 602 Chamber Music Literature 3
Survey of chamber music literature from the 17th century to the present
RESTRICTIONS: Requires permission of instructor

MUSC 605 Symphonic Literature 3
Historical and structural analysis of major symphonic works from the 18th century to the present
RESTRICTIONS: Requires permission of instructor

MUSC 606 Wind Literature 3
History of the wind band and its music from the Renaissance to the present, with emphasis on the wind music from the 19th and 20th centuries for wind ensemble and concert band. Examines wind literature suitable for secondary school and college level performing groups
RESTRICTIONS: Requires permission of instructor
MUSC 611 STUDIES IN MUSIC HISTORY 3
A survey of representative compositions from various periods of music history. Includes study of relationship of music to the sociocultural background of each epoch and discussions of performance practice problems. Topics of study may change with each time of offering.

RESTRICTIONS: Requires satisfactory score on music history graduate placement exam

MUSC 620 LARGE ENSEMBLE 1
Participation as a performer in a large ensemble.

RESTRICTIONS: Entry audition required

MUSC 621 CHAMBER ENSEMBLE 1
Participation as a performer in a chamber ensemble.

RESTRICTIONS: Entry audition required

MUSC 622 MATERIALS AND METHODS OF RESEARCH 3
Examines the major materials used in research in the areas of music history, theory, performance and education, as well as the methods of conducting research in these fields.

RESTRICTIONS: Requires permission of instructor

MUSC 636 ADVANCED CHORAL CONDUCTING 3
A study of the conducting of vocal ensemble literature of the historical periods from the Renaissance through the 20th century.

RESTRICTIONS: Requires permission of instructor.

MUSC 637 ADVANCED INSTRUMENTAL CONDUCTING 3
Advanced conducting techniques for directors of instrumental performing groups.

RESTRICTIONS: Requires permission of instructor

MUSC 638 LARGE ENSEMBLE PRACTICUM 1
Participation in a large ensemble and seminar with ensemble director.

RESTRICTIONS: Requires permission of instructor

MUSC 640 HISTORY AND PHILOSOPHY OF MUSIC EDUCATION 3
Includes philosophical issues concerning the role of arts in education, intrinsic and extrinsic rationales for music in the schools, and arts advocacy at the local, state, and national levels. Also includes the history and philosophy of music education in the United States from the colonial period to the present.

RESTRICTIONS: Requires permission of instructor

MUSC 661 ADVANCED PRIVATE STUDY 1-4
Advanced instruction in voice or instrument. The student adds to course title the branch of study elected: piano, organ, voice on an orchestral instrument, e.g., Private Study (Piano).

RESTRICTIONS: Requires audition

MUSC 662 ADVANCED PRIVATE STUDY 1-4
Advanced instruction in voice or instrument. The student adds to course title the branch of study elected: piano, organ, voice or an orchestral instrument, e.g., Private Study (Piano).

PREQ: MUSC661

MUSC 663 ADVANCED KEYBOARD LITERATURE 3
Style, structure and technical performance of keyboard music from the 17th century to the present.

RESTRICTIONS: Requires permission of instructor

MUSC 675 GENERAL MUSIC K-12 3
Learning strategies to develop listening, performing, creating and literacy skills in a general music curriculum. Recommended for directors of performing ensembles.

RESTRICTIONS: Requires permission of instructor

MUSC 676 SEMINAR IN MUSIC EDUCATION 3
Advanced topics in music education.

RESTRICTIONS: Requires permission of instructor

MUSC 679 PROFESSIONAL IMPROVEMENT PROJECT I 3
Development of a portfolio to include unit plans based on synthesis of content from prior courses.

RESTRICTIONS: Requires permission of instructor. Taken in sequence with MUSC680 as an alternative to thesis option

MUSC 680 PROFESSIONAL IMPROVEMENT PROJECT II 3
Implementation of the portfolio developed in MUSC679.

PREQ: MUSC679

RESTRICTIONS: Taken in sequence with MUSC679 as an alternative to thesis option

MUSC 681 PEDAGOGY AND LITERATURE 3
The study of teaching methods and literature of music scores, books and other media. Shows teaching skills needed at the university level and lower.

MUSC 695 ADVANCED ANALYTICAL TECHNIQUES 3
Examination of structural, melodic, rhythmic, harmonic and textural aspects of selected music literature and their significance in artistic performance.

RESTRICTIONS: Requires satisfactory score on music theory graduate placement exam

MUSC 869 MASTER’S THESIS 1-6

NUTRITION AND DIETETICS

NTDT 103 INTRODUCTION TO NUTRITION PROFESSIONS 1 PF
Career opportunities in dietetics and nutrition. Provides information about undergraduate programs and the competencies required of dietitians and nutritional scientists. Introduces opportunities for undergraduate research. Introduction to concepts of a profession and relevant professional organizations.

RESTRICTIONS: Open to freshmen or sophomores

NTDT 200 NUTRITION CONCEPTS 3
Functions and sources of nutrients, dietary adequacy, energy balance and metabolism with emphasis on health promotion. Includes weight control, evaluation of popular diets, vegetarianism, eating disorders, alcohol, other current issues and concerns in nutrition.

RESTRICTIONS: Credit for graduation limited to one of the following: NTDT200 or NTDT303.

NTDT 222 NUTRITION CONTROVERSIES 1
Examines topical issues in nutrition via discussion format.

COREQ: NTDT200

NTDT 240 INTRODUCTION TO CLINICAL DIETETICS 3
Orientation to clinical dietetics; basic skills required for nutritional care; nutritional assessment, dietary counseling, clinical simulations, nutritional care plans and composition of basic therapeutic diets.

PREQ: NTDT200.

NTDT 255 MULTICULTURAL FOOD HABITS 3
Food habits of diverse cultural groups. Determinants of traditional and current food habits, historical and cultural context. Emphasis on ethnic population groups in the United States. Contribution of selected dietary patterns to knowledge of health and disease prevention. Impact of migration to different cultural settings.

NTDT 256 MULTICULTURAL FOODS LABORATORY 1
Sampling of foods from diverse cultural groups utilizing demonstrations by restauranteurs and individuals as well as class preparation. Field trips to markets and ethnic food stores.

COREQ: NTDT255

NTDT 305 NUTRITION IN THE LIFESPAN 3
Nutrition and health during the different stages of life: pregnancy, lactation, infancy, preschool years, middle childhood, adolescence, adulthood and later maturity.

PREQ: NTDT200 and a biology course

NTDT 310 NUTRITION AND ACTIVITY 3
Energy and nutrient needs for activity on particular physical and athletic activities; common myths and fallacies concerning diet and athletic performance; appropriate dietary approaches for specific activities and active people.

PREQ: NTDT200 and a physiology course

NTDT 321 QUANTITY FOOD PRODUCTION AND SERVICE 1
Principles of quantity food production and delivery systems; menu planning and purchasing design. Safety, sanitation and technical operations in a food service system. Applied computer-assisted management.

PREQ: NTDT200 and FOSC201

NTDT 322 MANAGEMENT OF FOOD AND NUTRITION SERVICES 3
Organization and administration of not-for-profit and entrepreneurial services. Functions and responsibilities related to these products including planning, marketing, total quality and human resource management, and food and labor cost accounting.

PREQ: NTDT211, NTDT321, NTDT325

NTDT 325 LABORATORY IN QUANTITY FOOD PRODUCTION AND SERVICE 1
Laboratory experience in quantity food production and delivery systems. Application of principles of sanitary practice, technical reporting and management.

COREQ: NTDT321

NTDT 326 COMPUTER-ASSISTED FOODSERVICE SYSTEMS MANAGEMENT 2
Investigation of microcomputers and computer software programs that could be used in the management of foodservice systems. Understanding of basic computer concepts, appropriate applications, maintenance of data bases and data integrity and use of management information reports.

PREQ: NTDT200 and NTDT321

NTDT 328 FOODSERVICE FACILITY DESIGN 1
Development of quantity food production kitchen design. Considerations include material flow, equipment requirements, functional areas, safety and sanitation, and energy and water resources.

PREQ: NTDT321, NTDT325

NTDT 330 NUTRITION COUNSELING 3
Theories, skills and techniques of nutrition interviewing and counseling.

PREQ: NTDT240
NDTD 550 DIETETICS PRACTICUM I 4 PF
Introduction of supervised practice experiences for incorporation and application of skills, knowledge, and attitudes with special emphasis on current dietary issues facing the health professional in public health nutrition
COREG: NTDT550
RESTRICTIONS: Open to Dietetic Internship students only

NDTD 551 DIETETICS PRACTICUM II 4 PF
Continued supervised practice experiences for incorporation and application of skills, knowledge, and attitudes, focusing on entry level competence with special emphasis on current dietary issues facing the health professional
PREQ: NTDT350 and NTDT351
RESTRICTIONS: Open to Dietetic Internship students only

NDTD 610 FUNDAMENTALS OF NUTRITION AND METABOLISM 3
Review of metabolic processes related to nutrition and current research related to macronutrient and micronutrient functions
RESTRICTIONS: Undergraduate preparation in biochemistry, physiology and basic nutrition

NDTD 611 ADVANCED NUTRITION 3
Metabolism and its relation to human nutrition; current literature; methods and techniques of nutrition research
PREQ: NTDT1400 or NTDT610

NDTD 615 ADVANCED NUTRITION AND PHYSICAL ACTIVITY 3
Critical analysis of current research on effects of nutrition, food and diet on physical activity and optimal athletic performance. Develops specific topics and interest through independent projects
PREQ: Undergraduate nutrition and physiology courses

NDTD 620 MATERNAL AND INFANT NUTRITION 3
Maternal physiological adjustments in pregnancy and their relationship to nutritional needs; effect of maternal nutrition on fetal growth and development; physiology of lactation and maternal nutrient needs; and neonatal nutritional needs and current infant feeding practices
PREQ: NTDT3400 and BISC276

NDTD 621 NUTRITION RESEARCH METHODS 2
Discussion and experience with selected methods and techniques in nutrition research
PREQ: NTDT400 and BISC106 or BISC406

NDTD 624 MONOAGASTRIC NUTRITION 3
See ANSC624 for course description

NDTD 630 TRACE MINERALS AND VITAMINS 3
Recent advances in knowledge of the nutritional significance of trace minerals and vitamins; their physiological function(s); factors affecting need and utilization; assessment of requirements; occurrence in food supply; and current issues and concerns. Primary focus on human nutrition with comparative aspects in other living systems utilized to illustrate significant similarities and/or differences. May be cross-listed with ANSC630
PREQ: Junior level course work in human or animal nutrition, biochemistry or biological sciences

NDTD 640 NUTRITION AND AGING 3
Addresses topics related to the effects of aging on fundamental nutrition processes, food and nutrient requirements, nutrition screening and assessment of nutritional status, nutrition intervention and food assistance programs and nutrition related disorders of older adults
PREQ: NTDT310 or NTDT400 or NTDT401

NDTD 645 NUTRITION EDUCATION 3
Identification of objectives for nutrition education; selection and use of methods, materials and resources for different age levels; and integration of nutrition into the total health and consumer aspects of school, non-school and adult programs
PREQ: NTDT750

NDTD 650 CURRENT PERSPECTIVE IN DIETETICS I 2
Introduces exploration of roles and responsibilities of today's dietitian in foodservice management, clinical, and community dietetics. Emphasis on concept-relevant to evolving therapies and technologies in the profession and issues that influence ethical, legal, and professional responsibilities of dietitians

NDTD 651 CURRENT PERSPECTIVES IN DIETETICS II 2
Continued exploration of roles and responsibilities of today's dietitian in clinical, community and foodservice management dietetics. Emphasis on concept-relevant to evolving therapies and technologies in the profession and issues that influence ethical, legal, and professional responsibilities of dietitians

NDTD 652 TOPICS IN NUTRITION AND DIETETICS 1-3
Analysis of a specific topic in an area of nutrition and dietetics
RESTRICTIONS: Requires permission of instructor
NTDT 654 Ruminant Nutrition and Metabolism 3
See ANSC654 for course description.

NTDT 660 Community Nutrition 3
Nutritional care as a part of health maintenance and health care delivery; the relationship of community resources, structures and dynamics to an individual's ability to be well fed. Nutritional needs and programs, Nutrition program planning and evaluation; community assessment techniques.

RESTRICTIONS: Advanced Nutrition course required.

NTDT 665 Seminar 1-3 PF

NTDT 668 Research 1-6

NTDT 669 Field Project or Theoretical Paper 1-6

Development, preparation, and defense of written report of field project or theoretical analysis.

RESTRICTIONS: Requires permission of instructor.

NTDT 675 Transcultural Food Habits 5
Travel study of transcultural food habits: attitudes, beliefs, customs, and taboos. Visits to major food industries and health organizations, and interaction with indigenous population.

RESTRICTIONS: Only three credit hours may count toward graduation for majors.

NTDT 868 Research 1-6

NTDT 869 Master's Thesis 1-6

NURSING

NURS 205 Societal Context of Nursing 3
Introduces conceptual frameworks for nursing practice within a pluralistic society. Utilizes historical perspective to examine the current status of nursing within the health care system. Discusses importance of professionalism, including ethical and legal responsibilities.

PREREQ: BISC207, BISC208, CHEM105, CHEM106, ENG110, STAT201 and SOC200 level or above.

COREQ: NURS215

RESTRICTIONS: Open to nursing majors only.

NURS 212 Pathophysiological Concepts 3
Application of sciences to maintenance of, and alterations in, homeostasis. Pathophysiological concepts relate to stress, inflammation, immunity, neoplasia, pain and alterations in fluid/electrolyte balance, blood flow and circulation. Exploration of disorders common throughout an individual's life span.

PREREQ: BISC207, BISC208, BISC276, CHEM105, CHEM106, ENG110, STAT201, and SOC200 level or above.

COREQ: BISC271

RESTRICTIONS: Open to nursing majors only.

NURS 215 Basic Nursing Practice Skills 1
Introduces basic client care skills. Emphasis on the intellectual, interpersonal and psychomotor skills foundational to nursing practice.

PREREQ: BISC207, BISC208, CHEM105, CHEM106, ENG110, STAT201 and SOC200 level or above.

COREQ: NURS205

RESTRICTIONS: Open to nursing majors only.

NURS 306 Determinants of Wellness 3
Selected concepts/theories pertinent to promotion of optimal health of well clients of all ages from diverse sociocultural backgrounds with the context of family, community, and health care system.

PREREQ: BISC276, BISC371, IFST201, NTDT200, NURS205, NURS215, NURS212, PSYC201 and STAT201.

COREQ: NURS312, NURS314 and NURS315.

RESTRICTIONS: Open to nursing majors only Offered in Fall.

NURS 308 Restorative Nursing Practice I 4
Concepts/theories pertinent to promotion of optimal health of clients experiencing common and/or recurring health problems.

PREREQ: NURS306, NURS312, NURS314 and NURS315

COREQ: NURS317, NURS318 or NURS319, and NURS332.

RESTRICTIONS: Open to nursing majors only Offered in Spring.

NURS 312 Pathophysiology 3-4
Focuses on biological processes leading to alterations of body structure and functions. Emphasis on identification of etiology and pathogenesis of selected diseases.

PREREQ: BISC276, BISC371, IFST201, NTDT200, NURS205, NURS215, NURS212, PSYC201 and STAT201.

COREQ: NURS306, NURS314 and NURS315.

RESTRICTIONS: Open to nursing majors only. Nursing major must take 3 credits. Non-major must take 4 credits.

NURS 314 Psychopathology 2-3
Focuses on psychopathological processes across the lifespan. Emphasis on the etiology, manifestations, and treatment options of selected psychopathological processes. Addresses current trends and issues in the mental health field.

PREREQ: BISC276, BISC371, IFST201, NTDT200, NURS205, NURS215, NURS212, PSYC201 and STAT201.

COREQ: NURS306, NURS312 and NURS315.

RESTRICTIONS: BRN major - Admission to BRN Program. Open to nursing majors only. Nursing major must take 2 credit hours. Non-major must take 3 credit hours.

NURS 315 Practicum I 4
Experiences for incorporation and application of selected concepts/theories underlying nursing care for well clients of all ages, from diverse sociocultural backgrounds, within the context of family, community and health care systems. Comprises 112 clinical hours.

PREREQ: BISC276, BISC371, IFST201, NTDT200, NURS205, NURS215, NURS212, PSYC201 and STAT201.

COREQ: NURS312, NURS314, and NURS306.

RESTRICTIONS: Open to nursing majors only Offered in Fall.

NURS 317 Practicum II 3
Experiences for incorporation and application of selected concepts/theories underlying nursing care that promotes optimal health of adult clients with common and/or recurring health problems. Emphasizes assessment and planning steps of nursing process. Comprises 84 clinical hours.

PREREQ: NURS306, NURS312, NURS314 and NURS315.

COREQ: NURS308, NURS318 or NURS319, and NURS332.

RESTRICTIONS: Open to nursing majors only Offered in Spring.

NURS 318 Practicum III 3
Experiences for incorporation and application of selected concepts/theories underlying nursing care that promotes optimal health of children with common and/or recurring health problems. Emphasizes assessment and planning steps of nursing process. Comprises 84 clinical hours.

PREREQ: NURS306, NURS312, NURS314 and NURS315.

COREQ: NURS308, NURS317 and NURS332.

RESTRICTIONS: Open to nursing majors only Offered in Spring.

NURS 319 Practicum IV 3
Experiences for incorporation and application of selected concepts/theories underlying nursing care that promotes optimal health of adults with mental illness. Emphasizes assessment and planning steps of nursing process. Comprises 84 clinical hours.

PREREQ: NURS306, NURS312, NURS314 and NURS315.

COREQ: NURS308, NURS317 and NURS332.

RESTRICTIONS: Open to nursing majors only Offered in Spring.

NURS 332 Pharmacological Nursing Responsibility 3
Uses the conceptual framework of human needs to focus on the therapeutic and adverse biological, psychological and social reactions to pharmacological agents; drug use and medication abuse; client teaching; pertinent laboratory tests; current research findings. Nursing responsibilities emphasized with the nursing process.

PREREQ: NURS306, NURS312, NURS314 and NURS315.

COREQ: NURS308, NURS317 and NURS332.

RESTRICTIONS: Open to nursing majors only Offered in Spring.

NURS 340 Current Perspectives in Nursing 2
Introduces nursing theory and conceptual foundations for practice within a pluralistic society. Provides overview of principles of nursing education and practice at the baccalaureate level. Focuses on healthcare needs within diverse practice settings, emphasizing emerging legal and ethical responsibilities, economic and sociocultural influences.

RESTRICTIONS: Admission to BRN Program.

NURS 342 Nursing Informatics 2
Addresses the current utilization of evolving technologies in nursing/client education, practice, administration and research.

RESTRICTIONS: Admission to BRN Program.

NURS 343 Transition to Baccalaureate Nursing 1
Addresses issues related to the socialization and transition to baccalaureate nursing education and practice. Complements content of NURS340 and NURS342. Incorporates the practical application of evolving technologies with emphasis on nursing/client education. Introduces University and BRN Program resources.

PREREQ: NURS340 and NURS342.

NURS 344 Wellness and Health Assessment 2
Explores selected concepts, theories and skills utilized in health promotion and disease prevention of individuals from socioculturally diverse populations within the context of family, community and healthcare system. Includes key elements of a biopsychosociocultural health history and health assessment of individuals across the life course.

PREREQ: NURS343.

NURS 366 Independent Study 1-6
NURSING

NURS 405 INTRODUCTION TO NURSING RESEARCH 2-3
Introduction to nursing research methods basic to identification of researchable nursing problems and to evaluation of existing nursing research for consumership. PREREQ: Nursing major - NURS308, NURS317, NURS318 or NURS319, and NURS332. BRN major - NURS441
COREQ: Nursing major - NURS406, NURS417, NURS418 or NURS419
RESTRICTIONS: BRN major must take 3 credit hours. BRN major must take 2 credit hours. Open to nursing majors only.

NURS 408 RESTORATIVE NURSING PRACTICE II 4
Concepts and theories pertinent to promotion of optimal health of clients with selected and less common health problems. PREREQ: NURS308, NURS317, NURS318 or NURS319 and NURS332
COREQ: NURS417; NURS418 or NURS419; and NURS405
RESTRICTIONS: Open to nursing majors only. Offered in Fall.

NURS 409 PROFESSIONALISM IN NURSING PRACTICE 2
Concepts, theories and issues that influence nurses' legal, ethical and professional responsibilities to nursing and to the public. PREREQ: NURS405; NURS406; NURS417; NURS418 or NURS419
COREQ: NURS420
RESTRICTIONS: Open to nursing majors only. Offered in Spring.

NURS 411 TOPICS IN HEALTH CARE DELIVERY 1-6
A consideration of selected issues and problems of nursing practice within the health care delivery system. Exploration of some topics may include a laboratory or clinical component. Variable topics.
PREREQ: NURS308; NURS317; NURS318 or NURS319; and NURS332. No prerequisites for BRN major.
COREQ: NURS405; NURS417; NURS418 or NURS419
RESTRICTIONS: Open to nursing majors only. May be repeated for up to six credit hours.

NURS 417 PRACTICUM V 3
Experiences for incorporation and application of selected concepts and theories underlying nursing care that promotes optimal health for children with less common health problems. Emphasizes implementation and evaluation steps of nursing process. Comprises 75 clinical hours.
PREREQ: NURS308; NURS317; NURS318 or NURS319; and NURS332
COREQ: NURS405; NURS417; NURS418 or NURS419; and NURS405
RESTRICTIONS: Open to nursing majors only. Offered in Fall.

NURS 418 PRACTICUM VI 3
Experiences for incorporation and application of selected concepts/theories underlying nursing care that promotes optimal health of children with common and/or recurring health problems. Emphasizes implementation and evaluation steps of nursing process. Comprises 71 clinical hours.
PREREQ: NURS308; NURS317; NURS318 or NURS319; and NURS332
COREQ: NURS405; NURS417; NURS418 or NURS419; and NURS405
RESTRICTIONS: Open to nursing majors only. Offered in Fall.

NURS 419 PRACTICUM VII 3
Experiences for incorporation and application of selected concepts and theories underlying nursing care that promotes optimal health of adults with mental illness. Emphasizes implementation and evaluation steps of nursing process. Comprises 84 clinical hours.
PREREQ: NURS308, NURS317, NURS318 or NURS319; and NURS332
COREQ: NURS408, NURS417, NURS418; and NURS405
RESTRICTIONS: Open to nursing majors only. Offered in Fall.

NURS 420 PRACTICUM VIII 3
Selected experiences for the exploration and application of the basic concepts and theories of nursing leadership and management that facilitate transition to the professional role of the nurse. Comprises 168 clinical hours.
PREREQ: NURS405, NURS408, NURS417, and NURS418 or NURS419
COREQ: NURS409
RESTRICTIONS: Open to nursing majors only. Offered in Spring.

NURS 441 LEARNING LABORATORY: HEALTH ASSESSMENT 1
Demonstrates and integrates physical and psychological assessment skills on selected clients in the laboratory setting. Incorporates the practical application of evolving technologies in nursing practice and administration. Includes orientation to BRN Role Practicum.
PREREQ: NURS344

NURS 442 COMMUNITY HEALTH NURSING 3
Focuses on conceptual foundations for community health nursing practice with the community, family and individual as clients. Diversity in nursing roles and practice is related to community health promotion and community health problems.

NURS 443 BRN ROLE PRACTICUM 3
A preceptorship clinical experience focused upon the integration of concepts learned in baccalaureate nursing education.
PREREQ: NURS441 and NURS442.
COREQ: NURS445
RESTRICTIONS: NURS446 is either a prerequisite or corequisite.

NURS 445 NURSING RESEARCH APPLICATIONS 1
Demonstrates the practical application of technology in selected steps of the research process. Explores the process of research utilization as a mechanism to develop a research based nursing practice.
PREREQ: NURS441, NURS405 and NURS442.
COREQ: NURS443
RESTRICTIONS: NURS446 is either a prerequisite or corequisite.

NURS 446 LEADERSHIP AND ORGANIZATIONAL BEHAVIOR 2
Introduces organizational theory and structure, nursing care delivery systems and components of leadership. Focuses on the role of the nurse-leader in organizing, teaching, decision making, evaluating, planning change and managing conflict.
PREREQ: NURS441

NURS 466 INDEPENDENT STUDY 1-6

NURS 803 NURSING AND RELATED THEORIES AND MODELS 3
Examines the theoretical base of nursing as a discipline. The development of selected models and theories are analyzed with emphasis on relevance to nursing practice, education, and research.
RESTRICTIONS: Open to Nursing majors only.

NURS 804 ADVANCED NURSING PRACTICE: ROLES AND ISSUES 3
Focuses on roles and issues affecting nurses engaged in advanced practice. The role of the clinical nurse specialist, nurse practitioner, and nurse administrator will be analyzed in relation to current issues and concepts of advanced practice.
RESTRICTIONS: Open to Nursing majors only.

NURS 806 TRANSCULTURAL HEALTH CARE 3
Understanding and respect of the differences in cultural backgrounds between health care providers and consumers provide the framework for the study of the impact of culture on this relationship. Emphasis on examining the variety of meanings of health and illness among selected cultures and ethnic groups.
RESTRICTIONS: Requires RN and permission of instructor.

NURS 807 ETHICS AND HEALTH CARE 3
Provides an opportunity to analyze philosophic positions, ethics theories, and moral principles encountered by health care professionals in their role as providers. Discusses issues common to clinical practice settings and ethical dimensions.
RESTRICTIONS: Requires permission of instructor.

NURS 809 HEALTH BEHAVIOR 3
Nursing and behavioral science theory and research provide a framework for the analysis of health-related behaviors across the life span. Emphasis on the psychological and social determinants of health-related behaviors of individuals. Examines the roles of the clinical nurse specialist and other health professionals in this context.
RESTRICTIONS: Requires RN and permission of instructor.

NURS 810 RESEARCH METHODS IN NURSING 3
Focuses on the relationship between nursing theories and research, the scientific method, research design and methodology and ways to implement research findings in nursing practice.
PREREQ: NURS612 and first clinical course.
RESTRICTIONS: Open to nursing majors only. Requires permission of instructor.

NURS 814 NURSING MANAGEMENT IN CONTEMPORARY HEALTH CARE SETTINGS 3
Analysis of organizational behavior of individuals and groups in health care systems related to nursing management. Emphasis on the application of management theory and concepts to issues encountered in the work setting.
RESTRICTIONS: Requires BSN and permission of instructor.

NURS 819 NURSING ADMINISTRATION: ACCOUNTING, FINANCE AND ORGANIZATIONAL BUDGETS 3
Provides the basic principles and concepts of effective management of budgets for nursing units. Includes analysis of the environment, nursing organization and impact on nursing care.
RESTRICTIONS: Requires BSN and permission of instructor.

NURS 820 ADVANCED HEALTH ASSESSMENT 3
Assists the graduate student to acquire advanced knowledge and proficiency in performing health assessments. Such assessment includes eliciting a complete health history and performing a comprehensive physical examination.
RESTRICTIONS: BSN and a Basic Physical Assessment Course.

NURS 821 ADVANCED PATHOPHYSIOLOGY 3
Involves advanced study of the etiology and pathogenesis of the physiologic and biologic manifestations of disease in individuals throughout the life span. In addition to the common clinical disorders and diseases of children and adults, complex pathological sequelae will be studied.
RESTRICTIONS: BSN.
NURS 822 Advanced Pharmacology 3
Principles of pharmacology are applied to the therapeutic management of the client.
Emphasis is placed on prescribing, monitoring drug regimens, identifying adverse reactions,
and anticipating changes inherent in self medication.
RESTRICTIONS: BSN

NURS 823 Management of Women's Health Care 3
Focuses on gynecological and reproductive primary care. Emphasis is on management
of gynecological health needs and the normal reproductive cycle.
PREQ: NURS812, NURS820, NURS821 and IFST621
COREQ: NURS822

NURS 824 Management of Children's Health 3
Focuses on delivery of primary health care to children and adolescents. Emphasis is
placed on physical and developmental variations and management of acute and episodic
illness.
PREQ: NURS812, NURS820, NURS821 and IFST621
COREQ: NURS822.

NURS 825 Management of Adult Episodic Health Needs and Problems 3
Focuses on delivery of primary care to adults and the elderly with acute and episodic health problems.
Emphasis is placed on the clinical decision making that is necessary to plan
and provide primary health care services to this population.
PREQ: NURS812, NURS820, NURS821 and IFST621.
COREQ: NURS822.

NURS 826 Management of Adult Chronic Health Needs and Problems 3
Focuses on delivery of primary care to adults and the elderly with chronic health problems.
Emphasis is placed on management of ongoing needs.
PREQ: NURS812, NURS820, NURS821 and IFST621.
COREQ: NURS822.

NURS 827 FNP Preceptors 4
Comprehensive course builds on all previous clinical courses. Emphasis is placed on clinical
decision making in an interdisciplinary environment with the nurse practitioner as the
principal provider of primary care.
PREQ: All required clinical courses

NURS 828 Nurse Practitioner Seminar 1
Culminating experience in role development. Emphasis is placed on the role of the nurse
practitioner in the current health care system. Issues such as marketing, practice acts,
reimbursement, and prescriptive privileges will be discussed.
PREQ: All required clinical courses except NURS827.

NURS 829 Management of Obstetric & Gynecologic Problems 3
Focuses on the delivery of primary care to women with acute and chronic obstetric and
gynecologic problems.
PREQ: NURS 823

NURS 830 Management of Special Problems of Children 3
Focuses on the delivery of primary health care to special populations. Emphasis is on the
special problems of the neonate and high risk children and adolescents.
PREQ: NURS 824

NURS 831 Comprehensive Assessment of Older Persons 3
This course provides a conceptual foundation for geriatric/gerontological clinical nursing
specialists and nurse practitioners. Content is directed at assessing older adults and their
families and beginning to assist them with a continuum of health promotion, disease prevention
and disease management care.
COREQ: NURS803, NURS804 and NURS821.

NURS 832 Promotion Prevention and Disease Management for Older Persons 3-4
Builds on NURS831 by providing opportunities for students to gain knowledge and skills
related to primary, secondary, and tertiary prevention of diseases and disabilities in older persons.
PREQ: NURS831
COREQ: NURS820

NURS 836 Organizational Theories and Nursing Administration 3-4
Introduces graduate students to theories of administration, organization and management,
their interaction with nursing theories and their influence on management of health care agencies.
The interaction of theories with attainment of institutional goals is included.
COREQ: NURS803

NURS 837 Organizational Goals and Planning Strategies 3-4
Analyzes organizational systems and the role of nurse managers. Students identify organiza-
tional needs, formulate goals and objectives appropriate to health care agencies, and
identify strategies appropriate to accomplishing goal attainment with ethical constraints
of health care.
PREQ: NURS836

NURS 838 Nursing Management and Evaluation 4
Emphasizes the role of nurse managers in personal development, promoting research in
clinical settings, and developing and implementing quality improvement initiatives and
their implications for nursing on health care.
PREQ: NURS837

NURS 840 Cardiopulmonary Nursing I 3-4
Explores the scientific basis of prevention programs for cardiopulmonary problems as
well as for therapy for newly diagnosed or acute problems. Emphasis on assessment and
therapeutic intervention.
COREQ: NURS803, NURS804 and NURS821 or BSCS675.

NURS 841 Cardiopulmonary Nursing II 3-4
Theoretical and clinical investigations of cardiopulmonary nursing problems that require
long term care or follow up of adult clients in a variety of community settings. Emphasis
on assessment, health maintenance, and rehabilitation.
PREQ: NURS840.
COREQ: NURS820

NURS 845 Oncology/Immunodeficiency Nursing I 3-4
Explores the scientific basis of prevention programs and of therapy for newly diagnosed
or acute oncological/immunodeficiency problems in adults. Emphasis on assessment and
therapeutic intervention.
COREQ: NURS803, NURS804 and NURS821.

NURS 846 Oncology/Immunodeficiency Nursing II 3-4
Theoretical and clinical investigations of oncological/immunodeficiency nursing problems
that require long term care or follow up of adult clients in a variety of community settings.
Emphasis on assessment, health maintenance, home hospice care and survivorship
PREQ: NURS845.
COREQ: NURS820.

NURS 850 Nursing of Women and Newborns I 3-4
Biopsychosocial needs of women and newborns. Emphasis on interventions by the
advanced practice nurse to maintain or restore steady state in low risk clients.
COREQ: NURS803, NURS804 and NURS821.

NURS 851 Nursing of Women and Newborns II 3-4
Biopsychosocial needs of women and newborns. Emphasis on interventions by the
advanced practice nurse to maintain or restore steady state in clients with highly complex
health care needs.
PREQ: NURS850.
COREQ: NURS820.

NURS 854 Nursing of Children I 3-4
Explores the scientific basis for the routine health care guidance required by children
and their families. The primary focus of the course is on the acutely ill child.
COREQ: NURS803, NURS821 and NURS804.

NURS 855 Nursing of Children II 3-4
Explores the Biopsychosocial needs of children with chronic conditions and their families.
Emphasis is on the interventions of the advanced practice nurse to assist these children to
attain, maintain, or regain health.
PREQ: NURS 854.
COREQ: NURS 820.

NURS 868 Research 1-3
Investigation of a research problem in clinical nursing, finance, administration, personnel
management, public policy or education and completion of a scholarly research project.
RESTRICTIONS: Open to nursing majors only.

NURS 869 Master's Thesis 1-6

NURS 880 Nursing Assessment of Women, Children and Families 4
Integration of theories and concepts related to assessment of health and developmental
status of women, children and their families.
PREQ: NURS812.
RESTRICTIONS: Open to nursing majors only. Requires permission of instructor.

NURS 886 Clinical Nurse Specialist Role Integration 4
Integration of theories and concepts related to roles of the clinical nurse specialist.
Emphasis on advanced practice roles within the broad context of health care.
PREQ: NURS831 and NURS82, or NURS840 and NURS841, or NURS845 and
NURS846, or NURS850 and NURS851, or NURS854 and NURS855.

OPERATIONS RESEARCH

ORES 601 Survey Operations Research 3
Covers various deterministic mathematical programming methods (LP, integer dynamic),
network models and basic inventory models.
PREQ: Linear algebra
ORES 602 SURVEY OPERATIONS RESEARCH II 3
Covers various stochastic operations research models including decision theory, game theory, project planning, inventory models, simulation, markov decision processes and queuing models.
PREREQ: Linear algebra and MATH630

ORES 603 OPERATIONS RESEARCH PRACTICE 3
Instructors from hard sciences and social sciences introduce real-world Operations Research case studies based on their expertise. Students implement proposed solution methodologies using a variety of available computer software packages.
PREREQ: ORES601
COREQ: ORES602

ORES 650 URBAN TRANSPORTATION SYSTEMS 3
See CIE650 for course description

ORES 664 OPERATIONS RESEARCH INTERNSHIP 1-6 PF
Supervised, on-the-job experience, performing technical work for clients including OR applications, econometrics, and statistical applications.
RESTRICTIONS: Requires permission of instructor

ORES 690 OPERATIONS RESEARCH SEMINAR 0 PF
Seminars to be given by faculty and by visiting academicians, industry and government persons. Graduate students provide topical insights in significant methods and results of current research in operations research

ORES 801 OPERATIONS RESEARCH PRINCIPLES 3
Models and principles of basic interest to the theory and practice of operations research. Classic models of inventory and queuing theories, maintenance and replacement of equipment, and government planning. Contemporary models from research literature of energy management, urban planning, artificial intelligence and flexible manufacturing systems.
COREQ: MATH529, STAT601 or MATH630

ORES 802 OPERATIONS RESEARCH APPLICATIONS 3
Applications of models and principles of basic interest to the theory and practice of operations research. Classic models of inventory and queuing theories, maintenance and replacement of equipment, and government planning. Contemporary models from research literature of energy management, urban planning, artificial intelligence and flexible manufacturing systems.
COREQ: MATH529, STAT601 or MATH630

ORES 806 RESEARCH TECHNIQUES AND PROCEDURES 3
See FREC806 for course description

ORES 810 INTERNATIONAL AGRICULTURAL TRADE SPECIAL TOPICS 3
See FREC810 for course description

ORES 827 ADVANCED PRODUCTION ECONOMICS 3
See FREC827 for course description

ORES 834 SEMINAR IN RESOURCE ECONOMICS 3
See FREC834 for course description

ORES 868 RESEARCH 1-6
Research

ORES 869 MASTER’S THESIS 1-6

ORES 964 PRE-CANDIDACY STUDY 3-12 PF
Research and preparations in preparation of dissertation topic and/or qualifying examinations for doctoral students before admission to candidacy but after completion of all required course work.
RESTRICTIONS: Not open to students who have been admitted to candidacy.

ORES 969 DOCTORAL DISSERTATION 1-12 PF

PHILOSOPHY

PHIL 100 PHILOSOPHIES OF LIFE 3
Survey of selected past and present philosophies that people strive to live by, typically including individualistic, group-oriented, religious and nonreligious positions

PHIL 101 GREAT WESTERN PHILOSOPHERS 3
Survey of the key ideas of great Western philosophers concerning the nature of reality and how it is known. Focus on individual philosophers such as Plato, Aristotle, Descartes, Kant, Hegel, James and Whitehead.

PHIL 102 INTRODUCTION TO PHILOSOPHY 3
An examination of such central philosophical problems as ethics, theories of knowledge, the nature of reality, philosophy of religion and political philosophy

PHIL 105 CRITICAL THINKING 3
Emphasis on developing skill at logical criticism of arguments. Topics include informal fallacies, deceiving with statistics, the role of definitions in reasoning, the importance of evidence and confirmation

PHIL 109 MODERN RELIGIOUS ISSUES 3
The biblical world view and modern science, controversies over the nature of Scripture, doctrines of religious authority, the nature of theological language and existential interpretions and myth.

PHIL 125 TOPICS: PHILOSOPHY IN POPULAR CULTURE 1-4
Philosophical ideas expressed in popular media such as science fiction or fantasy literature, films and music. Topics are variable
RESTRICTIONS: May be repeated for up to four credit hours

PHIL 200 BUSINESS ETHICS 3
Ethical theory applied to moral problems in business. Corporate social responsibility, and ethical issues in advertising, personnel and investment

PHIL 201 SOCIAL AND POLITICAL PHILOSOPHY 3
Classical and contemporary views on such problems as the proper scope and functions of government, on what a just distribution of wealth is, and on the extent of an individual’s rights, liberties and obligation to obey the law.

PHIL 202 CONTEMPORARY MORAL PROBLEMS 3
The application of philosophical techniques to contemporary moral problems such as abortion, punishment, biomedical ethics, reverse discrimination and sexual morality. May be cross-listed with WOMS203

PHIL 203 ETHICS 3
Study of moral value, moral obligation and moral virtue through comparison of notable schools of ethical theory, including utilitarianism, existentialism, Kantianism, classical Greek eudaimonism, pragmatism and Thomism

PHIL 204 WORLD RELIGIONS 3
Varieties of religious belief and practice from diverse cultures, including representative Asian and Western traditions, studied mainly in terms of their historical development and importance.

PHIL 205 LOGIC 3
Concepts and techniques of elementary symbolic logic: truth and consistency of sentences, validity and soundness of arguments; translation of English sentences into a formal language, construction of truth tables and the use of a system of natural deduction to prove the validity of defective arguments.

PHIL 207 SCIENTIFIC REASONING 3
Critical survey of basic concepts and forms of inductive reasoning. Applications to the physical, social and biomedical sciences. Topics include: interpretations of probability, probabilistic fallacies, methods of statistical induction, logic of hypothesis testing, judging correlations, criteria of causation, experimental design and definitions of confirmation.

PHIL 208 INTRODUCTION TO JEWISH PHILOSOPHY 3
Fundamental issues in philosophy of religion reflecting both general theological approaches to resolving the tension between philosophy and religion and the uniquely Jewish attempt to do so. Topics include: God, miracles, good and evil, divine commandments and free will. May be cross-listed with JWS208

PHIL 209 PHILOSOPHY OF RELIGION 3
Religious experience, proofs for God's existence, religious language and critiques of religion. Selected special topics such as mysticism, evil, atheism, miracles, immortality and myth.

PHIL 210 WOMEN AND RELIGION 3
See WOMS210 for course description

PHIL 211 BASIC DECISION THEORY 3
Rational decision-making using only elementary logic and high-school algebra. Decisions under ignorance: max-min rules for preference orderings. Decisions under risk: probability, utility, and the expected-utility rule. Game theory; equilibrium strategies; prisoner’s dilemma. Social choices: voting paradoxes and Arrow’s theorem.

PHIL 216 INTRODUCTION TO FEMINIST THEORY 3
The concepts of love, marriage, sexuality, family, work, power and equality of women. Theories of women and their position in society, including classical Marxism, the status of women in the suffragettes, radical feminism and socialist feminism. May be cross-listed with WOMS216

PHIL 225 SCIENCE OR PSEUDOSCIENCE 3
Examination of claims and theories like astrology, biodynamics, parapsychology, ancient astronauts and the Bermuda triangle. Emphasis on methodology, patterns of reasoning and assumptions used to support such claims and theories and how they compare with those used in natural and social sciences. Topics include confirmation, explanation, causation, testing, scientific method, rationality and scope of science.

PHIL 226 MIND, ESP AND SURVIVAL 3
An exploration of major philosophical conceptions of the relation of mind (soul) and brain. Implications for the nature of mind from the literature of psychic research and immortality.

PHIL 229 THE NATURE OF SCIENCE 3
See CSC229 for course description

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PHYSICS AND ASTRONOMY

PHYS 104 ELEMENTARY PHYSICS 3
Overview of the principles of physics and their applications. Course is designed for beginners with no previous exposure to physics.
RESTRICTIONS: Requires working knowledge of algebra and the use of scientific notation. Only one course among PHYS101, PHYS104, PHYS201, PHYS207 and SCEN101 can count toward graduation.

PHYS 133 INTRODUCTION TO ASTRONOMY 4
Objects of the universe from the earth to galaxies. How the universal laws that govern them; e.g., gravity and electromagnetic radiation, permit us to learn their nature from quantitative observations. Telescopic observations, visual and electronic, included in the laboratory.

PHYS 139 STAR AND CONSTELLATION IDENTIFICATION 1
Familiarity with the sky, its changing aspects, constellations, mythology, bright stars, and planets. Topics will include use of sky maps and coordinates, how to estimate directions and time from knowledge of the sky, and the use of binoculars and small telescopes.

PHYS 140 GREAT CONCEPTS OF PHYSICS 3
Designed for non-science majors, will concentrate on understanding both the content and impact of five great concepts of physics: the Newtonian Universe, Conservation of Energy, Entropy, Relativity, and Wave-Particle Duality. The influence of these concepts in other areas of human concern, e.g., philosophy, art, history, politics, medicine, etc. will be an important feature.
PREREQ: College algebra

PHYS 141 LIGHT, LASERS, CAMERAS, PERCEPTION 3
Introduction to the phenomena of light, optics and perception for non-science majors. Topics include nature of light, sources of light and shadows, rainbows, mirages and other atmospheric phenomena, cameras, telescopes, microscopes, color creation and perception, physics in art, the human eye and perception.

PHYS 143 ENERGY TECHNOLOGY AND SOCIETY 3
Basic principles of physics are applied to discuss forms of energy (mechanical, thermal, chemical, electrical and nuclear), and how energy is derived from sources such as coal, petroleum, solar, nuclear fission and fusion. Environmental consequences of energy use are treated.
PREREQ: College algebra

PHYS 144 CONCEPTS OF THE UNIVERSE 3
Survey of astronomy emphasizing early and modern concepts. Stars, planets, galaxies, cosmic evolution and intelligent life are studied in the context of physics principles which describe the dynamics of the universe. Scientific process is used to interpret observations that shape our perceptions of the cosmos.
RESTRICTIONS: Not for credit to students who have taken PHYS133 or PHYS134.

PHYS 145 QUASARS, BLACK HOLES AND THE UNIVERSE 3
A non-mathematical course focusing on the role of explosions and other violent events in the universe. The major topics are Einstein’s theory of special relativity, black holes, galaxies, exploding galaxies, quasars, the expanding universe, pulsars, supernovae and x-ray stars.

PHYS 146 QUARKS, GLUONS, AND THE BIG BANG: PARTICLES AND COSMOLOGY 3
Non-mathematical course focusing on the elementary particles and their influence on the early evolution of the universe. Major topics are quarks and the forces they feel, Einstein’s theory of relativity, Quantum Mechanics made fairly simple, and the Inflationary Universe. 
RESTRICTIONS: Requires high school algebra

PHYS 147 ATOMS FOR EVERYONE 3
Elementary but earnest inquiry into the sources of our knowledge that these completely invisible building blocks of ordinary matter exist as discrete entities, and exist to the exclusion of all other possibilities.
RESTRICTIONS: Requires high school algebra

PHYS 201 INTRODUCTORY PHYSICS I 4
First course in a two-part sequence with PHYS202 which provides a comprehensive introduction to physics for students in physical, biological, health, and environmental sciences. Topics include: geometrical optics, rectilinear mechanics, fluid, and thermodynamics.
PREREQ: MATH115
RESTRICTIONS: Requires a grade of "C" or better in MATH115 and strong mathematics background in geometry, algebra and trigonometry. MATH221 strongly recommended. Recommended for pre-dentistry students. Only one course among PHYS104, PHYS201, PHYS207 and SCEN101 can count toward graduation.

PHYS 202 INTRODUCTORY PHYSICS II 4
Second course in a two-part sequence with PHYS201 which provides a comprehensive introduction to physics for students in physical, biological, health, and environmental sciences. Topics include: rotational and oscillatory motion, waves, electricity and magnetism, structure and properties of nuclei, atoms, molecules and solids.
PREREQ: MATH115 and PHYS201
RESTRICTIONS: Requires a grade of "C" or better in MATH115 and strong mathematics background in geometry, algebra and trigonometry. MATH221 strongly recommended. Recommended for pre-dentistry students. Only one course among PHYS102, PHYS202 and PHYS208 can count toward graduation.

PHYS 207 FUNDAMENTALS OF PHYSICS I 4
Calculus-based introduction to physics, with primary emphasis on mechanics. Integrates conceptual understanding with extensive problem solving and laboratory experience.
COREQ: MATH242
RESTRICTIONS: Only one course from among PHYS101, PHYS104, PHYS207 and SCEN101 can count toward graduation.

PHYS 208 FUNDAMENTALS OF PHYSICS II 4
Calculus-based introduction to physics, with primary emphasis on electricity and magnetism. Integrates conceptual understanding with extensive problem solving and laboratory experience.
PREREQ: PHYS207
COREQ: MATH243

PHYS 209 FUNDAMENTALS OF PHYSICS III 4
Calculus-based introduction to waves and quantum physics. Material on waves will include the damped and undamped harmonic oscillator, mechanical and electromagnetic waves, and the basics of Fourier series. The quantum physics material will include the Bohr model, diffraction and interference of electrons, photoelectric effect, blackbody radiation, Compton scattering, and the interpretation of the Schrodinger equation.
PREREQ: PHYS208

PHYS 210 INTRODUCTION TO THERMAL PHYSICS 3
Basic concepts of thermodynamics including properties of substance, first and second law analysis of systems and control volumes, entropy and availability. Power and refrigeration cycles.
PREREQ: MATH302

PHYS 306 COMPUTATIONAL METHODS OF PHYSICS 3
Treats the application of various mathematical methods to various subfields of Physics. Shows the use of selected analytical and numerical methods in all branches of Physics, emphasizing the use of similar methods in different areas of Physics.
PREREQ: MATH241, MATH242 and MATH243
COREQ: MATH302
RESTRICTIONS: Required of Bachelor of Science Physics majors.

PHYS 313 PHYSICAL OPTICS 4
Introduction to optics at an intermediate level with emphasis on physical concepts and the properties of waves. Appropriate for physics as well as engineering students and others with a physical science background.
PREREQ: MATH302
RESTRICTIONS: Requires a strong mathematics background.

PHYS 345 INTRODUCTION TO ELECTRICITY AND ELECTRONICS 4
Fundamentals of electricity and magnetism specific to dc and ac circuit analysis, transient circuit behavior, and rotating machinery. Fundamentals of analog and digital electronics, with emphasis on applications in engineering. Integrated circuits and operational amplifiers.
PREREQ: PHYS207
COREQ: MATH243
RESTRICTIONS: Not for major credit.

PHYS 366 INDEPENDENT STUDY 1-3

PHYS 419 CLASSICAL MECHANICS I 3
Intermediate course which emphasizes the fundamental principles of classical mechanics.
Treats in detail and with mathematical rigor, particle mechanics, conservation laws, harmonic oscillation, motion under central force, rigid body dynamics, and moving coordinate systems.
COREQ: MATH302

PHYS 422 QUANTUM MECHANICS 3
Introduces quantum mechanical concepts by reviewing experiments which cannot be explained by classical physics. The Schrdinger equation is solved for simple cases such as free-particle motion, the simple harmonic oscillator and the hydrogen atom, with a basic treatment of angular momentum.
PREREQ: PHYS209, MATH302, and MATH349

PHYS 449 INTRODUCTION TO RESEARCH 1-6
Undergraduate research on an assigned problem carried out under the supervision of the instructor.

PHYS 466 INDEPENDENT STUDY 1-3

PHYS 600 PHYSICS RESEARCH TALKS 1 PF
Lectures by Physics faculty describing their current research to aid graduate students in selection of an area of thesis research.

PHYS 601 INTRODUCTION TO TEACHING PHYSICS AND ASTRONOMY 1 PF
Introduction to the methods and techniques of teaching and tutoring physics at a level appropriate for teaching assistants and tutors of undergraduate courses in Physics and Astronomy. Discussion and workshop formats will be used during the course.
PHYS 603 ELECTRICITY AND MAGNETISM I 3
First course in a two-part sequence with PHYS604 which provides a detailed treatment of
electrodynamics and magnetostatics at the intermediate level. Topics include: Maxwell's
equations in the static limit; multiple expansions; capacitance and electric field energy;
analytical and numerical solutions to boundary-value problems, dielectric and magnetic
media, and steady currents
PREREQ: PHYS208 or PHYS202
COREQ: MATH303 or MATH601

PHYS 604 ELECTRICITY AND MAGNETISM II 3
Second course in a two-part sequence with PHYS603 which provides a detailed treat-
ment of electromagnetic theory at the intermediate level. Maxwell's equations are develop-
ated and applied to electromagnetic waves in vacuum, material media, and wave
guides, includes application to electromagnetic radiation, and special relativity.
PREREQ: PHYS208 or PHYS202, and PHYS603.

PHYS 607 METHODS OF MATHEMATICAL PHYSICS 3
Mathematical subjects commonly employed in physics with examples taken from physics
Linear vector spaces; Fourier series; orthogonal functions expansions and energy problems
PREREQ: PHYS620, MATH302 and MATH602

PHYS 608 METHODS OF MATHEMATICAL PHYSICS 3
Mathematical subjects commonly employed in physics with examples taken from physics
Complex variables and asymptotic analysis
PREREQ: PHYS620, MATH302 and MATH602

PHYS 610 QUANTUM MECHANICS 3
Wavelike properties. The Schrodinger equation; One-dimensional problems; Spherical-
ly symmetric potentials; Orbital angular momentum. Applications including hydrogenic
atoms
PREREQ: PHYS422

PHYS 616 KINETIC THEORY AND THERMODYNAMICS 3
Postulates of kinetic theory; review of classical mechanics; entropy maximum
principle; energy minimum principle; Legendre transformations; Entropy representa-
tion, internal energy representation, Helmholtz representation and Gibbs representation;
Maxwell relations; reduction of partial derivatives; phase transitions; statistical mechanics
via Boltzmann's elementary method; equipartition of energy; Applications. May be cross-
listed with ELEG816
PREREQ: MATH243 and PHYS209

PHYS 620 CLASSICAL MECHANICS II 3
Topics covered are Lagrangian and Hamiltonian dynamics; dynamics of systems of parti-
cles, rigid bodies and fluids, oscillations of systems of coupled particles, oscillations and
waves in continuous systems. Provides a classical introduction to techniques that are used
extensively in quantum and statistical physics
PREREQ: MATH302 and PHYS419

PHYS 621 FUNDAMENTALS OF MODERN PHYSICS 3
Comprehensive and critical discussion of the phenomenological bases of atomic, elec-
tronic, and nuclear physics and their assimilation into a wave mechanical view of the
microscopic world
PREREQ: MATH302

PHYS 624 INTRODUCTION TO SOLID STATE PHYSICS 3
X-ray diffraction, structure and properties of metals, insulators and semiconductors, and
band theory of solids; includes electrical, optical, magnetic and thermal properties
PREREQ: PHYS3616 and PHYS621

PHYS 631 ACOUSTICS 3
Vibrations of particles, strings and membranes; acoustic waves; radiation of sound;
room acoustics; and acoustic measurements
PREREQ: MATH302

PHYS 632 ASTROPHYSICS 3
Survey of diverse astronomical objects and the physical principles used in modeling
them. Emphasis on the observational basis and foundations of astrophysics. Stellar mag-
nitudes, colors and spectra; the HR diagram; solar and stellar activity; binary stars; the
phenomena of galactic and extragalactic astronomy
PREREQ: MATH302 plus 14 hours of physics

PHYS 633 INTRODUCTION TO STELLAR PHYSICS 3
Introduction to the physics of stellar interiors and atmospheres. The evolution of stars is
explored by studying the changes in internal composition due to nuclear reactions. The
physical processes underlying stellar spectra are investigated. Computer simulations of
stars and their atmospheres may be used
PREREQ: PHYS632 and PHYS602

PHYS 638 SELECTED TOPICS IN PHYSICS 3
Treatment of a specialized subject, taken from the following list: low-temperature physics,
advanced experimental physics in research areas active in the department, cosmology,
elementary particles, lasers and Fourier optics and plasma physics
RESTRICTIONS: May be repeated for credit when topics vary

PHYS 643 ELECTRONICS FOR SCIENTISTS 3
Fundamentals of analog and digital electronics, with emphasis on applications in sci-
cence. Circuit analysis, operational amplifiers, filters, gates, flip-flops, counters, analog to
digital and digital to analog converters
PREREQ: PHYS208 or equivalent

PHYS 644 INSTRUMENTATION FOR SCIENTISTS 3
Electronic measurements and instrumentation with emphasis on applications in science.
Amplification, noise, low-level signal recovery, lock-in amplifiers, digital signal averag-
ing, frequency and time measurement, transducers, bridges, interfacing to laboratory
computers and automation of experiments
PREREQ: PHYS208 and PHYS645 or equivalents

PHYS 647 MODERN PHYSICS LABORATORY 3
Introduction to modern experimental methods and techniques. Consists of a variety of
experiments for the study of the structural, transport, magnetic, optical and nuclear prop-
erties of matter. Covers basic experimental techniques involved in materials preparation,
vacuum design and measurement, and temperature control and measurement
PREREQ: PHYS209 and PHYS621

PHYS 803 SOLID STATE PHYSICS 3
Crystal structure; mechanical, thermodynamic, electrical, optical and magnetic properties
of solids; and imperfections in crystals
PREREQ: PHYS624

PHYS 804 SOLID STATE PHYSICS 3
Crystal structure; mechanical, thermodynamic, electrical, optical and magnetic properties
of solids; and imperfections in crystals. Continuation of PHYS603
PREREQ: PHYS605

PHYS 809 ELECTROMAGNETIC THEORY 3
Review of statics; Maxwell's equations, physical optics and wave guides. May be cross-
listed with ELEG809
PREREQ: PHYS604

PHYS 810 ELECTROMAGNETIC THEORY 3
Geometric optics limit of Maxwell's equations, Liouville-Wiechert fields, radiation fields,
radiation damping, Wheeler-Feynman theory. May be crosslisted with ELEG810. May be
crosslisted with ELEG810
PREREQ: PHYS604 and PHYS605

PHYS 811 QUANTUM MECHANICS 3
Continuation of PHYS610. Approximation methods. Introductory scattering theory. Spin
matrix formulation of quantum mechanics. Application to atoms, molecules, nuclei and
crystals
PREREQ: PHYS607 and PHYS610
COREQ: PHYS608

PHYS 812 QUANTUM MECHANICS 3
Continuation of PHYS611. Approximation methods. Symmetries. Semi-classical radiation
theory. Identical particles and many-particle wave functions. Collision theory. Application
to atoms, molecules, nuclei and crystals
PREREQ: PHYS611

PHYS 813 STATISTICAL MECHANICS AND THERMODYNAMICS 3
Review of equilibrium thermodynamics and probability theory. Kinetic theory including
the Boltzmann equation; Gibb's ensemble theory in classical and quantum statistical
mechanics. Classical ideal gases with internal degrees of freedom. Dissociation equilibri-
um. The ideal Bose and Fermi gases with elementary applications to fluids and solids.
May be crosslisted with ELEG812
PREREQ: PHYS616

PHYS 815 THEORY OF RELATIVITY 2-3
Critique of the special theory introductory to the general theory; physical basis of the
general theory; Einstein's field equations; and problems of gravitational motion and
radiation
PREREQ: PHYS609

PHYS 817 ADVANCED CLASSICAL DYNAMICS 3
Theoretical treatment of classical dynamics
PREREQ: PHYS620

PHYS 834 GALACTIC AND EXTRAGALACTIC ASTROPHYSICS 3
A theoretical and analytic treatment (contrasted with the largely phenomenological
approach of PHYS632) of non-stellar astrophysics, including cosmic rays, inter-stellar
medium, atomic astrophysics, plasma astrophysics, galactic structure, active galaxies
and quasars, and cosmology
PREREQ: PHYS632

PHYS 838 ADVANCED TREATMENT OF SELECTED TOPICS 3
Selected topics taken from the following list: molecular biophysics, theory of relativity,
nuclear theory, elementary particles, magnetic resonance, quantum mechanics, applica-
tions of group theory in physics, and quantum electronics
RESTRICTIONS: May be repeated for up to six credit hours when topics vary

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PHYS 639 ADVANCED SOLID STATE PHYSICS 3
Selected topics in solid state physics, taken from the following list: electronic conductivity, optical properties, crystal imperfections, magnetism, irreversible thermodynamics, mathematical methods, and band theory.
RESTRICTIONS: May be repeated for up to nine credit hours when topics vary

PHYS 662 SOLID STATE SEMINAR 1
Lectures and discussions by faculty and students on specialized topics in solid state physics

PHYS 683 THEORETICAL PHYSICS SEMINAR 1 PF
Lectures and discussions on specialized topics in theoretical physics

PHYS 688 RESEARCH 1-9

PHYS 689 MASTERS THESIS 1-6

PHYS 964 PRE-CANDIDACY STUDY 3-12 PF
Research and readings in preparation of dissertation topic and/or qualifying examinations for doctoral students before admission to candidacy but after completion of all required course work.
RESTRICTIONS: Not open to students who have been admitted to candidacy.

PHYS 969 DOCTORAL DISSERTATION 1-12 PF

PHYSICS AND ASTRONOMY

PHYS 466 INDEPENDENT STUDY 1-6

PHYT 600 PHYSICAL THERAPY AS A PROFESSION 1
An introduction to the ethics, licensure laws and practice of physical therapy.
RESTRICTIONS: Open to MPT Program students only. Requires permission of instructor

PHYT 601 EXERCISE PHYSIOLOGY: TREATMENT AND RESEARCH 3
Discusses research on the effects of exercise on various patient populations. Emphasis on muscle, bone and connective tissue remodeling. Examines cardiopulmonary rehabilitation, isokinetic and isotonic training and research.
RESTRICTIONS: Open to MPT Program students only

PHYT 602 PATIENT MANAGEMENT I 3
An introduction to the theory and skills necessary for the physical therapy management of patients commonly seen in primary care facilities.
RESTRICTIONS: Open to MPT Program students only

PHYT 603 PHYSICAL AGENTS 2
Introduces the physics, physiology and clinical applications of various physical agents. Students incorporate this new knowledge into patient care problems.
RESTRICTIONS: Open to MPT Program students only

PHYT 604 FUNCTIONAL ANATOMY AND BIOMECHANICS 3
Gives a description of normal and abnormal human movement. Emphasis on surface anatomy and evaluation procedures such as EMG and cinematography.
PREREQ: BISC 401 and PHYT 622

PHYT 605 CLINICAL INTERNSHIP 1-9 PF
Full or part-time clinical experiences at various health care facilities.
RESTRICTIONS: Open to MPT Program students only with completion of prior professional coursework.

PHYT 606 RESEARCH METHODS 3
The research process will be studied. Among the topics covered are: scientific method, experimental design, statistical procedures and technical writing.
RESTRICTIONS: Open to MPT Program students only.

PHYT 607 ELECTROPHYSIOLOGICAL TREATMENTS AND EVALUATION 3
Emphasis on the physiological basis for the electrotherapeutic and electrophysiological evaluative procedures practiced in the physical therapy clinic.
RESTRICTIONS: Open to MPT Program students only

PHYT 608 MUSCULOSKELETAL EVALUATION AND TREATMENT 3
Indepth analysis of evaluation and treatment strategies of spinal and extremity joints, muscles and connective tissue. Emphasizes research on the physiological basis of traction, mobilization and exercise.
PREREQ: PHYT 604, PHYT 622 and PHYT 604
RESTRICTIONS: Open to MPT Program student only

PHYT 609 NEUROPHYSIOLOGICAL EVALUATION AND TREATMENT 3
Indepth analysis of evaluation and treatment strategies of neurologically involved patients. Emphasizes research on the physiological basis of traction, mobilization and exercise.
PREREQ: All first-year MPT courses.
RESTRICTIONS: Open to MPT Program students only

PHYT 610 PSYCHOSOCIAL ASPECTS OF DISABILITIES 2
Discusses the psychosocial characteristics of patient populations and therapists that impact on the rehabilitative process. Time management, death and dying, sexuality, love and hate and other topics are discussed.
PREREQ: All previous MPT courses

PHYT 611 CLINICAL MANAGEMENT PRACTICES 1
Discusses concepts of administration and issues in the management of hospital clinics, private practice and consultative ventures.
PREREQ: All first-year MPT courses.
RESTRICTIONS: Open to MPT Program students only

PHYT 612 CLINICAL MANAGEMENT PRACTICUM 3
Full- or part-time practicum in a management setting. Advances skills in management.
PREREQ: All previous MPT courses.
RESTRICTIONS: Open to MPT Program students only

PHYT 613 ADVANCED ORTHOPEDICS 3
Discusses various schools of orthopedic intervention.
PREREQ: All previous MPT courses.
RESTRICTIONS: Open to MPT Program students only

PHYT 618 LIFE SPAN DEVELOPMENT 3
A study of human development and aging from birth through death. Emphasis on motor, sensory and cognitive functions and dysfunction.
PREREQ: All first-year MPT courses.

PHYT 619 ADVANCED SEMINAR 2
Lectures pursue various topics in greater depth and develop advanced clinical skills. Examples include burn and wound care, hand therapy, geriatrics and ob-gyn. Individualized clinical experiences may be arranged.
PREREQ: All previous MPT courses.
RESTRICTIONS: Open to MPT Program students only

PHYT 620 EDUCATIONAL PROCESS IN COMMUNITY HEALTH 1
Focuses on the learning/teaching process for application to the teaching roles of the health professional.
RESTRICTIONS: Open to MPT Program students only

PHYT 621 PRACTICE CLINIC 1 PF
Student participation in faculty practice clinic treating referrals for physical therapy. All students participate in the clinic at least one semester.
RESTRICTIONS: Open to MPT Program students only

PHYT 622 CLINICAL GROSS ANATOMY 6
Emphasis on structural and functional aspects of regions of body under study by means of human cadaver, lectures and demonstrations. Stresses clinical significance of anatomical structure.
RESTRICTIONS: Open to first-year physical therapy graduate students only

PHYT 623 CLINICAL NEUROSCIENCES 4
A study of the structure and function of the human nervous system with major emphasis on the cause-effect relationships between lesions and their symptoms. Emphasis on the neural mechanisms controlling movement.
PREREQ: PHYT 622.

PHYT 624 INTRODUCTION TO EVALUATION 1
Provides the student with an understanding of the philosophy and practice of patient evaluation and physical therapy diagnosis. Muscle performance testing and measurement of joint motion of the extremities will be emphasized.
RESTRICTIONS: MPT Program students only
PHYT 626 ADVANCED REGIONAL ANATOMY 3 PF
Structural and functional aspects of regions of the body under study are emphasized by means of a dissection of a specific region of the human body.
PREREQ: PHYT 221

PHYT 801 MEDICAL SCIENCE I 2
Lectures in pathology, clinical medicine, cardiology and pharmacology
RESTRICTIONS: Open to MPT Program students only.

PHYT 802 MEDICAL SCIENCE II 2
Lectures in orthopedics, radiology and rheumatology
PREREQ: All previous MPT courses

PHYT 803 MEDICAL SCIENCE III 2
Lectures in neurology, pediatrics, geriatrics and other medical specialties as required
PREREQ: All previous MPT courses
RESTRICTIONS: Open to MPT Program students only

PHYT 868 RESEARCH 1-9
PREREQ: All previous MPT courses
RESTRICTIONS: Requires permission of instructor

PHYT 869 MASTER'S THESIS 1-6
PREREQ: All previous MPT courses
RESTRICTIONS: Requires permission of instructor

PLSC 100 PLANTS AND HUMAN CULTURE 3
Historical survey of interrelationships between plants and diverse human cultures. Examines Asian, African, Mediterranean, North/South American peoples (ancient and modern) to provide a broad multicultural perspective and commentary on modern American values about plants and their environment
PREREQ: PLSC 105

PLSC 101 BOTANY I 4
Introductory botany stressing fundamental concepts and processes in plants. Topics include cell structure and function, anatomy, genetics, reproduction, physiology, taxonomy, phylogeny and ecology
PREREQ: CHEM 101

PLSC 105 INTRODUCTORY FORESTRY 3
Disturbance, ecology, value, measurement and management of forest systems
PREREQ: PLSC 101

PLSC 133 ORNAMENTAL HORTICULTURE 3
The use of ornamental plants. Emphasis on basic knowledge of plant materials useful in maintaining an aesthetically and functionally pleasing environment in and around the home
PREREQ: CHEM 101

PLSC 151 INTRODUCTION TO CROP SCIENCE 3
Plant structure and plant processes with practical application to the production and management of commercial crops
RESTRICTIONS: Credit not allowed if preceded by PLSC 401

PLSC 154 TOPICS IN PRODUCTION AND MANAGEMENT OF ORNAMENTAL PLANTS 1-6
Topics combine theory and practice in the areas of turf and ornamental horticulture
RESTRICTIONS: Not for major credit except as elective

PLSC 170 SOILS AND ENVIRONMENTAL QUALITY 3
Role of soils in contemporary environmental problems, including the nature and causes of soil, air and water pollution; soil management practices to minimize environmental impacts of nutrients, pesticides, agricultural and industrial wastes, and contaminated soils; risk management strategies needed to develop environmentally sound management programs
PREREQ: CHEM 101

PLSC 171 NEW STUDENT COLLOQUIUM 1
Focus on academics, careers and resources as important components in achieving success in the plant and soil sciences. Practical skills, helpful in mastering the first year in the plant and soil sciences major
RESTRICTIONS: Open to first year majors only

PLSC 201 BOTANY II 4
Sexual and vegetative characters of algae, bacteria, fungi, liverworts, mosses, ferns, horsetails, club mosses, quillworts, gymnosperms and angiosperms. Selected genera within these divisions considered in detail
PREREQ: PLSC 101 or BISC 207

PLSC 204 INTRODUCTION TO SOIL SCIENCE 4
Fundamentals of soil including origin, composition and classification; physical, chemical and biological properties; significance of soil properties to use and management, and to soil-plant relationships
PREREQ: CHEM 101

PLSC 211 HERBACEOUS LANDSCAPE PLANTS 3
Survey of herbaceous plants including annuals, perennials and bulbs; plant identification, culture, selection, design and maintenance in the landscape
PREREQ: PLSC 133

PLSC 212 WOODY LANDSCAPE PLANTS 4
The study of woody plants for landscape use in the Mid-Atlantic coastal region, including plant identification, selection and culture
PREREQ: PLSC 133

PLSC 213 TURF ESTABLISHMENT AND MAINTENANCE 4
Factors affecting the establishment and maintenance of turf and utility turf; emphasis on the management of golf courses, athletic fields and sod forms
PREREQ: PLSC 133

PLSC 300 PRINCIPLES OF ANIMAL AND PLANT GENETICS 3
See ANSC 300 for course description

PLSC 302 VEGETABLE SCIENCE 3
Basic factors affecting productivity and marketability of vegetable crops
PREREQ: PLSC 201, BISC 207

PLSC 303 INTRODUCTION TO PLANT PATHOLOGY 4
Introduction to the nature, cause, development, effects and control of plant disease. Laboratory involves microscope use for examining plant disease specimens and fungal structures, and experience in isolation and culture of pathogenic fungi
PREREQ: PLSC 201 or BISC 207

PLSC 305 ENVIRONMENTAL SOIL MANAGEMENT 4
Practical application of the basic principles of soil chemistry, physics and microbiology to modern land use programs. Covers basic principles of nutrient management (availability and cycling in soils, roles in plant nutrition), soil acidity and liming, soil testing, environmental fate of non-essential elements and organic chemicals, and role of risk assessment in soil management
PREREQ: CHEM 102 and PLSC 204

PLSC 306 INTRODUCTION TO PLANT MOLECULAR BIOLOGY 3
The molecular biology of higher plants, including organization of plant genes, genomes, gene expression, gene transfer and genetic engineering
PREREQ: BISC 207, CHEM 213

PLSC 310 PLANTS AND HUMAN CULTURE LABORATORY 1
See ANSC 10 for course description

PLSC 311 LANDSCAPE CONSTRUCTION 4
Introduction to principles involved in contour grading, site drainage, design of landscape features and methods of construction related to landscaping
PREREQ: PLSC 212

PLSC 331 BASIC LANDSCAPE DESIGN 4
Application of design principles to actual field problems, drafting and presenting techniques
PREREQ: PLSC 212

PLSC 332 ORNAMENTAL HORTICULTURE INTERNSHIP 1-6
Supervised, faculty-monitored, career-related experience in one or more aspects of the ornamental horticulture industry
PREREQ: PLSC 101

PLSC 336 INDEPENDENT STUDY 1-6

PLSC 401 AGRONOMIC CROP SCIENCE 3
Production and management of the major grain and forage crops, with emphasis on diagnosis of production problems and decision making
PREREQ: PLSC 133

PLSC 402 PLANT TAXONOMY 3
Identification, classification and nomenclature of vascular plants, including sight recognition as well as use of alternative-statement keys. Emphasis on economic plant families of eastern U S
PREREQ: PLSC 201

PLSC 403 NURSERY AND GARDEN CENTER MANAGEMENT 3
Production, maintenance and marketing of plants relative to the establishment and management of a nursery or garden center
PREREQ: PLSC 101 or PLSC 151

PLSC 410 INTRODUCTION TO PLANT PHYSIOLOGY 3
The physiology of green plants: light and energy conversion, carbon fixation, nitrogen metabolism, amino acid synthesis, protein synthesis mechanics and regulation, water and solute utilization, nutrient translocation, photosynthesis and photoperiodism and growth hormones, considered at the fundamental level of operation
PREREQ: PLSC 201 or BISC 208, and CHEM 213

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PLSC 411 Diagnostic Plant Pathology 3
Consideration of major pathogenic causes of economic losses of plants. Emphasis on principles of etiology, epiphytology, symptoms and control.
PREREQ: PLSC303

PLSC 413 Principles of Plant Disease Control 3
Principles of plant disease control by exclusion, eradication and resistance. Plant protection with emphasis on fungicides, bactericides, and nematicides and their use.
PREREQ: PLSC303

PLSC 414 Plant Cell and Tissue Culture 4
Principles of culturing plants in vitro. Topics for both lecture and laboratory include cell suspensions, another culture, embryo rescue, micropropagation and regeneration via organogenesis and embryogenesis.
PREREQ: PLSC101

PLSC 417 Greenhouse Management 4
Greenhouse structures, environmental control, cultural techniques and general management practices in greenhouse operations. Laboratory exercises supplement lecture material.
PREREQ: PLSC201 and PLSC204

PLSC 420 Plant Physiology Laboratory 2
The extraction from higher plants of enzymes and other macromolecules, and assay by chemical tests. Pigment extraction, organelle separation, ion uptake, protein manipulation using centrifuge, spectrophotometer, chromatography and electrophoresis.
PREREQ: PLSC410
COREQ: PLSC410

PLSC 422 Plant Propagation 3
Practical and physiological aspects of the propagation of economic plants including both sexual and asexual methods.
PREREQ: PLSC201

PLSC 429 Introductory Mycology 4
A survey of the structure, classification and possible relationship of major groups of fungi with stress on representative organisms and a working knowledge of terminology. Practical laboratory experience in the culture and identification of fungi.
RESTRICTIONS: Requires permission of instructor

PLSC 431 Landscape Construction II 3
The application of the principles covered in PLSC31 to the solution of landscape construction, site drainage and grading problems, and construction documentation.
PREREQ: PLSC331

PLSC 435 Plant Developmental Biology 3
An anatomical and molecular analysis of plant growth and development with a focus on how genes regulate pattern formation and cellular differentiation.
PREREQ: PLSC300, PLSC306

PLSC 440 Integrated Pest and Disease Management 3
See ENTO440 for course description.

PLSC 450 Fine Garden Design 3
Comprehensive solution of landscape problems. Field application of principles of construction and design.
PREREQ: PLSC322

PLSC 454 Management of Landscape Enterprises 4
How to establish and finance a landscape management business; how to hire, supervise, evaluate, discipline and terminate personnel; how to manage time, select equipment, construct bids and contracts and maintain landscaped areas.
PREREQ: PLSC211 and PLSC212

PLSC 455 Issues in Horticulture 3
An introduction to current and emerging issues facing the horticultural professions. Ethics, professionalism, environment, politics, horticultural technology and practices will be the focus of discussion groups, student oral and written presentations, case studies, guest lectures, and field trips.
RESTRICTIONS: Open to junior and senior majors only

PLSC 465 Seminar 1
Oral and written reports in one of the fields of plant science.

PLSC 466 Independent Study 1-6

PLSC 470 Weed Biology and Control 4
Introduction to weed science: weed biology and identification, survival strategies, competition, and impact of weeds. Weed management principles and practices including cultural, biological, and chemical control methods.
PREREQ: PLSC101 or PLSC151 or PLSC204

PLSC 601 Agronomic Crop Science 3
Production and management of the major grain and forage crops, with emphasis on diagnosis of production problems and decision making.
PREREQ: PLSC151

PLSC 602 Physiological Plant Productivity 3
PREREQ: PLSC410

PLSC 603 Soil Physics 3
See BREG603 for course description.

PLSC 605 Plant Breeding 3
Improvement of crops through the application of genetic principles to breeding methods.
PREREQ: ANSC300 or PLSC300 or introductory genetics course
RESTRICTIONS: Includes at least two mandatory Saturday field trips

PLSC 606 Soil Genesis and Classification 4
Soil forming factors and processes; chemical, physical and mineralogical parameters useful in characterizing soil; geologic and geomorphic settings in Delaware and their influence on soil formation and classification; soil taxonomy and soil limitations and interpretations.
PREREQ: PLSC204

PLSC 607 Plant and Soil Water Relations 3
Environmental aspects, measurement and control of water flux and storage in the soil-plant-atmosphere continuum; and development and significance of plant water deficits.
PREREQ: PLSC505 and PLSC140

PLSC 608 Environmental Soil Chemistry 3
Principles of soil chemical reactions and their application to the environment including: inorganic and organic soil components, soil solution-solid phase equilibria, sorption phenomena, ion exchange reactions, kinetics of soil chemical processes, redox chemistry, soil acidity and solubility. May be cross-listed with CHEM608
PREREQ: CHEM102 or CHEM104 and PLSC204

PLSC 609 Plant Microtechnique 3
Introduction to techniques useful in microscopically examining diseased and nondiseased plant structures. Emphasis on fixation, embedding, sectioning, staining and interpretation of prepared materials.

PLSC 611 Diagnostic Plant Pathology 3
Consideration of major pathogenic causes of economic losses of plants. Emphasis on principles of etiology, epiphytology, symptoms and control.
PREREQ: PLSC303

PLSC 613 Principles of Plant Disease Control 3
Exclusion, eradication, resistance and protection with emphasis on fungicides, bactericides and nematicides and their use.
PREREQ: PLSC300

PLSC 615 Vascular Plant Anatomy 3
A developmental and comparative study of the cells, tissues and organs of vascular plants. Readings in the current anatomical literature.

PLSC 616 Plant Virology 4
The epidemiology, detection, identification and control of plant viruses and virus-like agents.
PREREQ: PLSC303

PLSC 619 Soil Microbiology 4
Characterization of microorganisms and microbial habitats in soil environments. Processes and interactions involving soil microorganisms with respect to agricultural productivity and environmental quality. Introduction to laboratory techniques for the observation, enumeration and isolation of soil microorganisms, and measurement of associated activities.

PLSC 620 Plant Physiology Laboratory 2
The extraction from higher plants of enzymes and other macromolecules, and assay by chemical tests. Pigment extraction, organelle separation, ion uptake, protein manipulation using centrifuge, spectrophotometer, chromatography and electrophoresis.
PREREQ: PLSC410
COREQ: PLSC410

PLSC 629 Introductory Mycology 4
A survey of the structure, classification and possible relationship of major groups of fungi with emphasis on representative organisms and a working knowledge of terminology. Practical laboratory experience in the culture and identification of fungi.
RESTRICTIONS: Requires permission of instructor.

PLSC 640 Integrated Pest and Disease Management 3
See ENTO640 for course description.

PLSC 650 Clay Mineralogy 3
See MAST650 for course description.
PLSC 660  PESTICIDES IN THE ENVIRONMENT  3
Role of pesticides in agriculture and public health. Classification and environmental fate
in soil, water and atmosphere. Management practices, non-target effect, detoxification of
pesticide wastes, risk assessment, regulation, impact of pesticide alternatives.
PREREQ: CHEM102

PLSC 670  WEED BIOLOGY AND CONTROL  4
Introduction to weed science; weed biology and identification, survival strategies, com-
petition, and impact of weeds. Weed management principles and practices including
cultural, biological, and chemical control methods
PREREQ: PLSC101 or PLSC151 or PLSC204

PLSC 800  CURRENT TOPICS IN PLANT SCIENCE  1-3
Discussion of selected topics and recent literature in plant science

PLSC 801  PLANT SCIENCE TECHNIQUES  3
Theories, principles and applications of laboratory techniques used in planning and con-
ducting plant science research
RESTRICTIONS: Requires permission of instructor

PLSC 802  PROFESSIONAL DEVELOPMENT  1
Professional development including grantmanship, manuscript writing and reviewing;
resume preparation, job interviewing and presentation of research at professional meetings

PLSC 803  ADVANCED SOIL FERTILITY AND PLANT NUTRITION  3
Analysis of chemical and biochemical factors involved in nutrient availability and trans-
port in the soil. Evaluation of current theories of ion uptake, translocation and assimilation
PREREQ: PLSC305 and PLSC410

PLSC 804  PLANT MOLECULAR BIOLOGY  3
Fundamental and applied aspects of plant molecular biology, including organization of
plant genes, genomes, gene expression, gene transfer and genetic engineering.
PREREQ: ANSC276 or BISC453

PLSC 810  KINETICS AND SURFACE CHEMISTRY OF SOILS  3
Kinetics and mechanisms of soil chemical reactions, including application of chemical
kinetics to natural systems, rates of sorption/desorption, redox, precipitation/dissolution,
and ion exchange processes and application of surface spectroscopic and microscopic
techniques to elucidate reactions at the soil mineral/water interface. May be cross-listed
with CHEM810
PREREQ: PLSC608, and either CHEM418 or CHEM443

PLSC 814  ADVANCES IN PLANT TISSUE CULTURE  3
A review of current issue culture literature supplemented with a historical perspective.
RESTRICTIONS: Requires consent of instructor

PLSC 819  ECOLOGICAL SOIL MICROBIOLOGY  3
Ecological principles of microbial activities and processes in soil-plant systems: dynamics
of soil and rhizosphere populations, symbiotic interactions with plants, and selected top-
ics in environmental quality.
PREREQ: PLSC819

PLSC 823  SEMINARS: PRINCIPLES OF PLANT INFECTION  2
The basic factors governing the development of plant infection by phytopathogenic
organisms: invasion, parasitism, colonization, dissemination, epidemiology and host-par-
asite relationships
RESTRICTIONS: Requires permission of instructor

PLSC 831  TAXONOMY OF ORNAMENTAL PLANTS  3
Identification, considering the plant families that include the majority of the ornamental
plants grown in botanic gardens, arboreta and horticultural institutions

PLSC 832  BOTANIC GARDEN MANAGEMENT  1-10
A lecture and laboratory course conducted at Longwood Gardens to familiarize Long-
wood Fellows with the operations and purposes of all areas of Longwood Gardens and
other botanic gardens
RESTRICTIONS: May be repeated up to ten credits

PLSC 833  SEMINAR: SOIL SCIENCE  1
Current topics in soil science will be discussed from the literature

PLSC 834  CURRENT TOPICS IN AGRONOMY  1
Seminars to review current agronomic literature

PLSC 835  ENVIRONMENTAL SOIL PHYSICS  4
Fundamentals of water, heat and solute transport in soil. Reactions and movement of
organic/inorganic compounds in the soil environment. Application of management mod-
els to solve transport
PREREQ: PLSC204 and MATH221

PLSC 864  SEMINAR PLANNING AND DEVELOPMENT  1 PF
Planning, developing and hosting a major seminar series: topic and speaker selection,
format and schedule development, marketing, local arrangements and hosting

PLSC 865  SEMINAR  1

PLSC 868  RESEARCH  1-9

PLSC 869  MASTER'S THESIS  1-6

PLSC 874  TOPICS IN MOLECULAR BIOLOGY  1
Provides a forum for the discussion of current topics in molecular biology, with critical
reading of relevant primary literature
RESTRICTIONS: Requires permission of instructor

PLSC 964  PRE-CANDIDACY STUDY  3-12 PF
Research and readings in preparation of dissertation topic and/or qualifying examina-
tions for doctoral students before admission to candidacy but after completion of all
required course work.
RESTRICTIONS: Not open to students who have been admitted to candidacy

PLSC 969  DOCTORAL DISSERTATION  1-12 PF

PORTUGUESE

PORT 105  BRAZILIAN PORTUGUESE I - ELEMENTARY  4
Introduction to Brazilian Portuguese language and development of speaking, listening,
reading and writing skills through the use of basic texts. Language laboratory as needed

PORT 106  BRAZILIAN PORTUGUESE II - ELEMENTARY/INTERMEDIATE  4
Completion of basic Brazilian Portuguese. Increasing mastery of the basic skills of speak-
ing, listening, reading and writing.
PREREQ: PORT105
RESTRICTIONS: Two or three years of high school Brazilian Portuguese acceptable in lieu of Prerequisite

PORT 107  BRAZILIAN PORTUGUESE III - INTERMEDIATE  4
Review of grammar, continued practice in speaking and writing, and reading texts of
average difficulty.
PREREQ: PORT106
RESTRICTIONS: Four years of high school Brazilian Portuguese acceptable in lieu of Prerequisite. Course satisfies the Arts and Science foreign language requirement

POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

POSC 105  THE AMERICAN POLITICAL SYSTEM  3
Constitutional principles, structure and functions of the political process in the United States.

POSC 106  INTRODUCTION TO POLITICAL SCIENCE: ISSUES  3
Selected problems of politics drawn from comparative and international politics, Ameri-
can government and political theory.
RESTRICTIONS: Cannot be substituted for POSC105

POSC 220  INTRODUCTION TO PUBLIC POLICY  3
Emphasis on what government does, with a focus on substantive policy areas as well as
the mechanisms of policy making. Case studies of policy areas (e.g., health policy, envi-
ronmental policy, social welfare policy, etc.) used to illustrate processes of agenda set-
ting, decision making and policy implementation

POSC 240  INTRODUCTION TO INTERNATIONAL RELATIONS  3
The development of international systems, their structure and political economic dynam-
ics. Fundamental analytical concepts and approaches.

POSC 260  HUMANITIES COLOQUIUM  3
See ASRC260 for course description

POSC 270  COMPARATIVE POLITICS  3
Introduction to comparison of politics “within nations.” Covers Europe, Africa, Asia and
Latin America

POSC 285  CURRENTS IN POLITICAL THEORY  3
Basic introduction to political philosophy, organized not around particular historical peri-
ods or specific philosophers, but around some of the most important, enduring questions
of political theory: What is the nature of the state? What are the obligations and respon-
sibilities of citizens?

POSC 301  STATE AND LOCAL GOVERNMENT  3
American federalism with emphasis on government and politics, with special attention to
Delaware

POSC 302  RESEARCH METHODS  3
Design, measurement of political phenomena, collection and analysis of data and use of
computer in political research

POSC 303  THE ADMINISTRATIVE PROCESS  3
Public administration treated as process of organization, methods of management and
decision making common to all levels of bureaucracy.

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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSC 306</td>
<td>Economic Theory of Politics</td>
<td>3</td>
<td>See ECON306 for course description.</td>
</tr>
<tr>
<td>POSC 310</td>
<td>European Governments</td>
<td>3</td>
<td>Structure and process of British, French, West German and Russian governments.</td>
</tr>
<tr>
<td>POSC 312</td>
<td>East Asian Political Systems</td>
<td>3</td>
<td>An introductory survey to study the structure and process of political power in major countries in Asia. Special emphasis on China and Japan.</td>
</tr>
<tr>
<td>POSC 313</td>
<td>American Foreign Policy</td>
<td>3</td>
<td>The theory, policies and administration of U.S. foreign policy.</td>
</tr>
<tr>
<td>POSC 316</td>
<td>International Political Economy</td>
<td>3</td>
<td>Interaction of international political and economic phenomena. Considers history and development of political economy, and the political underpinnings and effects of global monetary, trade, financial and investment systems. Both relations among advanced countries, and between the advanced and poor countries will be considered.</td>
</tr>
<tr>
<td>POSC 320</td>
<td>Parties and Interest Groups</td>
<td>3</td>
<td>Organization and behavior of political parties and interest groups, including structure, leadership, recruitment and decision making.</td>
</tr>
<tr>
<td>POSC 321</td>
<td>Minority Group Politics</td>
<td>3</td>
<td>Examines the history, strategic positions and political tactics of Blacks, Chicana (Hispanic American), Native Americans and women in the American political system. Whereas appropriate, the politics of ethnic and racial minorities will be compared/contrasted to the politics of women.</td>
</tr>
<tr>
<td>POSC 322</td>
<td>Black Politics</td>
<td>3</td>
<td>Provides insight and understanding about the Black experience in the American political system. Basic questions addressed are: Is Black politics unique and, therefore, different from American politics? What are the goals and aspirations of Black America and are they universally shared? May be cross-listed with BAMS322.</td>
</tr>
<tr>
<td>POSC 323</td>
<td>Introduction to Women and Politics</td>
<td>3</td>
<td>Political/legal status of American women since the Revolution, and their participation in the political process. Women's present political/legal status, as illustrated through current issues such as reproductive rights, pay equity and the feminization of poverty. May be cross-listed with WOMS223.</td>
</tr>
<tr>
<td>POSC 324</td>
<td>Political Behavior</td>
<td>3</td>
<td>Public opinion, voting and elections, the mass media, ideology, political socialization and violence. The relationship between public opinion and public policy.</td>
</tr>
<tr>
<td>POSC 329</td>
<td>International Migration</td>
<td>3</td>
<td>This interdisciplinary course introduces alternative/complementary disciplinary approaches to the study of human movement between states. It is offered on a rotational basis by faculty involved in the University of Delaware migration group. May be cross-listed with GEOG329, HIST329 and/or SOC329.</td>
</tr>
<tr>
<td>POSC 333</td>
<td>Communism, Fascism and Democracy</td>
<td>3</td>
<td>Ideology and environmental backgrounds. Understanding of the operating nature and causes of these aspects of contemporary Western political life.</td>
</tr>
<tr>
<td>POSC 334</td>
<td>Liberalism and Conservatism</td>
<td>3</td>
<td>Introduces capitalism, socialism, liberalism, conservatism and democratic forms of Marxism. Accents problems of economic growth, equality, freedom and self-realization, bureaucracy, representation, justice, brotherhood, the profit motive, social cohesion, nationalism and the international order.</td>
</tr>
<tr>
<td>POSC 339</td>
<td>Britain and Europe</td>
<td>3</td>
<td>Examines Britain's role in an integrated Europe, with focus on contemporary problems and prospects of closer British ties to the European Union and related bodies.</td>
</tr>
<tr>
<td>POSC 340</td>
<td>Politics and the Media</td>
<td>3</td>
<td>Political roles of the media in socialization, political competence, agenda setting, the electoral process and political crises. Emphasis on media-political system interaction and its import for a democratic society.</td>
</tr>
<tr>
<td>POSC 341</td>
<td>Environment of Multinational Corporations</td>
<td>3</td>
<td>See BUAD341 for course description.</td>
</tr>
<tr>
<td>POSC 343</td>
<td>Society, Politics and Health Care</td>
<td>3</td>
<td>Interdisciplinary study of the political, social, economic and humanitarian issues of health care and health policy. Students will develop the capacity to understand the political process and its relationship to the health care delivery system. May be cross-listed with CSCI343 and/or SOCI343.</td>
</tr>
<tr>
<td>POSC 350</td>
<td>Politics and the Environment</td>
<td>3</td>
<td>The political context of environmental issues; air and water pollution, population control, and conservation.</td>
</tr>
<tr>
<td>POSC 355</td>
<td>Urban Politics</td>
<td>3</td>
<td>Decision-making processes and the exercise of political power in urban communities.</td>
</tr>
<tr>
<td>POSC 360</td>
<td>Humanities Colloquium</td>
<td>3</td>
<td>See ASRC360 for course description.</td>
</tr>
<tr>
<td>POSC 362</td>
<td>Diplomacy</td>
<td>3</td>
<td>Diplomacy is the art of formal representation and policy implementation. Diplomats need to understand complex material and represent positions in an effective manner. These skills are applicable in a variety of contexts. Readings, discussions, cases and simulations are used to introduce diplomatic skills.</td>
</tr>
<tr>
<td>POSC 363</td>
<td>International Law and Organization</td>
<td>3</td>
<td>Introduction to the development of international law and international organization.</td>
</tr>
<tr>
<td>POSC 365</td>
<td>Model United Nations</td>
<td>3</td>
<td>Intensive preparation for effective participation in the National Model United Nations held in New York City each April. RESTRICTIONS: May be repeated once for credit. Only open to selected delegates to the National Model United Nations.</td>
</tr>
<tr>
<td>POSC 366</td>
<td>Independent Study</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>POSC 372</td>
<td>East Central European Politics</td>
<td>3</td>
<td>Survey of East Central European political systems (Poland, Hungary, Czechia and Slovakia, Germany, Romania, former Yugoslavia, Bulgaria and Albania) after World War II. The so-called new federal states in Germany (ex-DDR) will be emphasized.</td>
</tr>
<tr>
<td>POSC 377</td>
<td>Arab-Israeli Politics</td>
<td>3</td>
<td>Development of the Arab-Israeli conflict analyzed from the Dreyfus Affair and the Balfour Declaration to current events.</td>
</tr>
<tr>
<td>POSC 380</td>
<td>Introduction to Law</td>
<td>3</td>
<td>Broad overview of the nature, functions and limits of law. Emphasis on law as the political instrument used to regulate, control and promote behavior and deal with social problems. May be cross-listed with LEST380. May be cross-listed with LEST380.</td>
</tr>
<tr>
<td>POSC 387</td>
<td>American Political Thought</td>
<td>3</td>
<td>Overview of American political thought. Focuses on critical formative periods in American politics, such as the Founding, Civil War and Industrial Revolution, with readings selected from the writings and speeches of key American statesmen.</td>
</tr>
<tr>
<td>POSC 390</td>
<td>Honors Colloquium</td>
<td>3</td>
<td>See ASRC390 for description.</td>
</tr>
<tr>
<td>POSC 400</td>
<td>Practicum in Teaching Political Science</td>
<td>3 PF</td>
<td>Available to outstanding Senior political science majors interested in obtaining teaching experience at the college level. Provides opportunity to lead discussion sections of students in lower division courses. RESTRICTIONS: Requires permission of instructor.</td>
</tr>
<tr>
<td>POSC 402</td>
<td>Civil Liberties I</td>
<td>3</td>
<td>Individual constitutional rights of expression, religion, &quot;fundamental rights&quot; (such as privacy and travel) and equal protection as developed by the U.S. Supreme Court. Role of the Supreme Court in American government.</td>
</tr>
<tr>
<td>POSC 404</td>
<td>The Judicial Process</td>
<td>3</td>
<td>Structure, process and personnel of American courts; factors influencing decisions and judicial policy making.</td>
</tr>
<tr>
<td>POSC 405</td>
<td>Constitutional Law of the United States</td>
<td>3</td>
<td>Constitutional principles regulating organization and function of federal government. United States Supreme Court decisions placed in a socio-political context.</td>
</tr>
<tr>
<td>POSC 406</td>
<td>Civil Liberties II</td>
<td>3</td>
<td>Constitutional rights of the accused in the U.S. judicial system, especially as developed through Supreme Court cases.</td>
</tr>
<tr>
<td>POSC 407</td>
<td>American Presidency</td>
<td>3</td>
<td>Modern American presidency with emphasis on presidential recruitment, organization and staffing. The nature and exercise of presidential power in the decision making process.</td>
</tr>
<tr>
<td>POSC 408</td>
<td>International Organization</td>
<td>3</td>
<td>Analysis of the organization of the international system, its structure, operating principles, formal and informal components.</td>
</tr>
<tr>
<td>POSC 409</td>
<td>Contemporary Problems of World Politics</td>
<td>3</td>
<td>Critical areas of international politics. Topics vary by instructor. RESTRICTIONS: May be repeated once when topics vary.</td>
</tr>
<tr>
<td>POSC 411</td>
<td>Politics and Poverty</td>
<td>3</td>
<td>Relationship of policy making and social conditions in the United States with regard to capacity of government to cope with problems arising from overpopulation and socio-economic differences.</td>
</tr>
</tbody>
</table>
POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

POSC 468 Undergraduate Research 1-6
Research conducted under the direction of or in conjunction with a faculty member. May result in a major research paper or be incorporated into a faculty project.

POSC 470 Senior Honors Seminar 3

POSC 477 Politics of the Arab World 3
Arab politics surveyed from Morocco to Iraq.

POSC 604 International Law 3
See MAST673 for course description.

POSC 612 Foreign Policy of the Post-Soviet Union 3
Principles, foreign policies and administration of the former Soviet government and its most important successor states.

POSC 615 Force and World Politics 3
Interrelationship of military and foreign policy; military strategies, arms control and disarmament; and the American experience.

POSC 616 Transnational Relations and World Politics 3
Transnational political and economic phenomena; emphasis on political behavior of multinational corporations, international financial system; and implications for world order.

POSC 624 Energy Policy and Administration 3
World and U.S. energy policies with emphasis on nuclear power, solar, energy and fossil fuels. Analyses progress and design of U.S. science and technology policy in energy domain. May be cross-listed with MAST620 and/or UAPP625.

POSC 626 Conservation, Efficiency and Renewable Energy Policy 3
See UAPP626 for course description.

POSC 627 Latin American Political Systems 3
Impact of social and economic change on the political processes.

POSC 628 Comparative Environmental Politics 3
See UAPP627 for course description.

POSC 632 Political System of the Post-Soviet Union 3
Structure and process of the political system of the USSR and its most important successor states (Russia, Ukraine, Byelarus, Kazakhstan and others).

POSC 633 African Political Systems 3
Structure, process and policies of the governments of Africa, south and north of the Sahara.

POSC 634 Political Thought I 3
An in-depth study of major political philosophers of the Western tradition from Plato to Machiavelli.

POSC 635 Political Thought II 3
An in-depth study of major political philosophers of the Western tradition from Machiavelli to the present.

POSC 640 International Development Policy and Administration 3
Poverty and inequality in developing countries and the economic development policies employed to alleviate them. Emphasis on policy reform, trade strategies, sustainable development, and the role of the state. The approaches used by the World Bank, the IMF and USAID. May be cross-listed with UAPP640.

POSC 642 Problems of Western European Politics 3
Examination of current political trends in Western European politics, including changes in party systems and problems of European integration.

POSC 643 Foreign Policy of Communist China 3
Theory, policies and administration of Communist Chinese foreign policy.

POSC 650 Problems of Latin American Politics 3
Current political issues in selected Latin American countries.

POSC 651 Communist Political Thought 3
Major theoretical ideas of Marxism-Leninism Marx, Engels, Lenin, Stalin, Mao Tse-Tung and Castro examined for their contributions to Communist thought.

POSC 652 Topics in Political Theory 3
Focuses on selected topics in political theory, including Marxism, Liberalism and Contemporary Political Theory.

POSC 656 Politics and Disaster 3
The politics and public administration of governmental preparedness for and response to, natural and human-caused disasters and emergency incidents.

POSC 659 Topics in Public Administration 3
See UAPP659 for course description.

POSC 677 Politics of the Arab World 3
Arab politics surveyed from Morocco to Iraq.

POSC 678 Admiralty and Maritime Law 3
See MAST678 for course description.

POSC 679 Shipping and Port Management 3
See MAST679 for course description.

POSC 681 Metropolitan Infrastructure and Transportation 3
See UAPP681 for course description.

POSC 683 Regional Policy Analysis 3
See UAPP683 for course description.

POSC 685 Personnel and Human Resource Issues: Current Topics 3
See UAPP685 for course description.

POSC 686 State and Local Government 3
See UAPP686 for course description.

POSC 687 State Government Management and Policy 3
See UAPP687 for course description.

POSC 688 Topics in State and Local Management 3
See UAPP688 for course description.

POSC 800 Seminar: Philosophy of Political Inquiry 3
Introduces basic topics of political inquiry. Surveys philosophies of science, epistemology, and seeks to address questions such as: What is theory?, How are scientific theories constructed and evaluated?, What constitutes a valid description or explanation? Conceptual and normative issues are also explored.

POSC 801 Research Design for Political and Policy Sciences 3
Seminar helps students understand and evaluate alternative research strategies. Each participant has an opportunity to write a research proposal that is then critiqued by members of the class and the instructor. A wide variety of research designs is covered.

POSC 803 Seminar: Public Administration 3
Reading and discussion of theories and problems of public administration, including organization, coordination, field administration, contracts, personnel, policy making, participation, adjudication, budgeting and administrative behavior. May be cross-listed with UAPP803.

POSC 805 Seminar: Public Law 3
Seminar on the role of courts and constitutional law within the political system. Research paper will be expected.

RESTRICTIONS: Graduate students only.

POSC 808 American Political Institutions 3
Explores major themes, viewpoints, issues and topics pertaining to the American political system. Themes include stability, change, conflict, American exceptionalism, American political thought, alternative perspectives on democracy, analysis of political parties, interest groups, Congress, the presidency and the courts.

POSC 810 Seminar: Comparative Government 3
Focuses on the evolution of the study of politics within national states, the principal theoretical approaches in studying politics cross-nationally and major scholarly controversies. Students review a broad spectrum of comparative research and writing.

POSC 811 Topics in Comparative Government 3
Focuses on selected topics in Comparative Government and Politics.

POSC 812 Seminar: Topics in American Politics 3
Focuses on selected topics in American politics, including urban politics, judicial politics and political parties.

POSC 813 Seminar: American Foreign Policy 3
Overview of contemporary American foreign policy and policy making, as well as the analytical, conceptual and methodological problems associated with foreign policy analysis.

POSC 814 Political Economy of the Environment 3
See UAPP810 for course description.

POSC 815 Public Management Statistics 3
See UAPP815 for course description.

POSC 816 Advanced Social Statistics 3
Provides advanced training in applied social statistics. Topics include analysis of variance, regression analysis, analysis of covariance, multi-dimensional cross-classifications and future analysis. Lectures supplemented by laboratory work involving computer statistical packages and simulations. May be cross-listed with UAPP816.

POSC 817 Financing Alternatives in the Public Sector 3
See UAPP817 for course description.
PSYC 201 General Psychology 3
A foundation course in the application of the scientific method to problems of human behavior and experience

PSYC 202 Language and Human Development 3
See EDST202 for course description.

PSYC 270 Families and Development Disabilities 3
See FSST270 for course description.

PSYC 301 Personality 3
A survey of theories of human personality and affect
PREREQ: PSYC201

PSYC 303 Introduction to Social Psychology 3
Analysis of interpersonal behavior with special emphasis on problems of conformity and influence; the organization and dynamics of social groups; and the development of opinions and attitudes
PREREQ: PSYC201

PSYC 304 Educational Psychology - Social Aspects 3
See EDST304 for course description.

PSYC 305 Educational Psychology - Cognitive Aspects 3
See EDST305 for course description.

PSYC 306 Computer Applications in Psychology 3
Introduction to computer programming, statistical packages, spreadsheet and data base systems and computer graphics
PREREQ: PSYC309
RESTRICTIONS: Open to PSYC majors and minors only.

PSYC 309 Measurement and Statistics 3
Theory and the application of statistical techniques to psychology data
PREREQ: One course in basic college mathematics and PSYC201.

PSYC 310 Sensation and Perception 3
Theories and experimental study of sensation and perception
PREREQ: PSYC309

PSYC 312 Learning and Motivation 3
Experimental study of contemporary theories of learning and motivation
PREREQ: PSYC201 and PSYC309

PSYC 314 Brain and Behavior 3
Study of the brain mechanisms underlying hunger, sex, aggression, learning, memory, perception, sleep and waking. May be cross-listed with CGSC314
PREREQ: PSYC201

PSYC 317 Sexual Behavior and Motive 3
An objective view of sex from physiological, psychological, sociological and anthropological studies. Readings include Masters and Johnson, Freud, Kinsey, Reiss, and Ford and Beach. Practical sexual information, e.g., contraception, also discussed, sometimes by outside experts
PREREQ: PSYC201 and PSYC309

PSYC 322 Psychology of Adjustment 3
Problems of human adjustment with emphasis on causation and prevention of common maladjustments
PREREQ: PSYC201

PSYC 324 Industrial Psychology 3
Psychological factors in selection, training, fatigue, morale, attitudes, accidents, and other aspects of worker efficiency
PREREQ: PSYC201 and PSYC309

PSYC 325 Child Psychology 3
Survey of the interactions of physiological, psychological, and environmental factors determining psychological development. Consideration of major theories of child development
PREREQ: PSYC201

PSYC 333 Psychology of Women 3
Psychological analysis of the meaning and implications of being a woman; and cause and consequences of the female experience. Biological sex vs psychological sex roles; identity, stereotyping, discrimination, self-concept, and the feminist perspective. May be cross-listed with WOMS333
PREREQ: PSYC201 or any 300-level psychology course

PSYC 334 Abnormal Psychology 3
Disorders of behavior and consciousness including the various psychoses, psychoneuroses, mental deficiency, and other conditions
PREREQ: PSYC201

PSYC 340 Cognition 3
Survey of major themes in human thought processes, concept formation, problem solving, creativity, language use and cognitive development. May be cross-listed with CGSC340.
PREREQ: PSYC201 and PSYC309
PSYC 346 **Psychology and the Law** 3
See CRJU346 for course description.

PSYC 347 **The Jury: Guilty or Not Guilty** 3
Observations of actual criminal and civil trials, mock jury deliberations of trials observed, and lectures on jury research, films, meetings with judges, prosecutors and defense attorneys.
PREREQ: PSYC201
COREQ: CRJU347
RESTRICTIONS: Requires permission of instructor.

PSYC 350 **Developmental Psychology** 3
An analysis of theory and research in developmental psychology including the topics of developmental processes, developmental risk, systems theory and contemporary social issues.
PREREQ: PSYC201 and PSYC309
RESTRICTIONS: If both PSYC325 and PSYC350 are taken, only PSYC325 will count for Major credit. Psychology majors and minors only.

PSYC 365 **Psychology Field Placement** 3
Student contracts with any psychology instructor. Requirements include a minimum of four hours per week working in an agency, institution or business, reading assignments and writing a term paper. Placement will be made with assistance from Career Planning and Placement. Inquiries should be made several months in advance.
PREREQ: PSYC201 and PSYC309

PSYC 366 **Independent Study** 1-6

PSYC 370 **Research in Personality** 3
An analysis of contemporary issues and research in personality including the assessment of personality traits, the personality situation interaction and the social and biological bases of individual differences.
PREREQ: PSYC201 and PSYC309
RESTRICTIONS: If both PSYC301 and PSYC370 are taken, only PSYC301 will count for major credit. Open to Psychology majors and minors only.

PSYC 380 **Psychopathology** 3
Exploration of research on diagnosis, etiology and treatment of major pathological disorders. Emphasis on original research articles, class discussion, assessment instruments in addition to analysis of taped interviews with patients used to illustrate the disorders.
PREREQ: PSYC201 and PSYC309; and either PSYC301, PSYC303, or PSYC325.
RESTRICTIONS: If both PSYC334 and PSYC380 are taken, only PSYC334 will count for major credit. Open to Psychology majors and minors only.

PSYC 390 **Social Psychology** 3
An analysis of theory and research in social psychology including the topics of social cognition, attitudes, interpersonal, group and intragroup relations. Student-designed research projects including data analysis.
PREREQ: PSYC201 and PSYC309.

PSYC 403 **Psychology of Nonverbal Behavior** 3
A seminar on the social psychological implications of the research literature on nonverbal behavior in social interaction. Focuses on interpersonal attraction, leadership, impression formation, cause attribution, deception, social attitudes, and cross-cultural factors, with practical applications.
PREREQ: PSYC309 and PSYC303 or PSYC390.

PSYC 405 **Advanced Social Psychology** 3
Contemporary theories of interpersonal behavior, dynamics of social groups and experimental methods for the study of social (communication and interaction) processes.
PREREQ: PSYC309, and PSYC390 or PSYC303.

PSYC 406 **Reduction of Intergroup Conflict** 3
The reduction of intergroup conflict in business, educational and experimental laboratory settings, with special attention given to organizational mergers. Investigation of strategies for reducing intergroup conflict.
PREREQ: PSYC309; and PSYC303 or PSYC390.

PSYC 410 **Biological Bases of Motivation and Emotion** 3
An evolutionary approach towards three major modern theories of motivation-ethologists' instinct theory, Freud's psychoanalytic theory, and psychologists' drive theory. Covers current work on circadian rhythms, obesity and anorexia, sleep, fever, phobias, learned helplessness, voodoo death, fear, love and aggression.

PSYC 411 **Brain and Computer** 3
The computing machinery of the brain: a hands-on introduction to neural models and networks. May be cross-listed with CGS414.
PREREQ: PSYC310 or PSYC312 or PSYC314 or PSYC340.

PSYC 412 **Human Psychophysiology** 3
Introduction to psychophysiological recording techniques. Elementary anatomy and physiology of the human nervous system. Application of psychophysiological techniques to the investigation of psychopathology, information processing, and social psychology. Laboratory demonstration of polygraphic measurement of autonomic and CNS variables with small computer analysis.
PREREQ: PSYC309 and PSYC314.

PSYC 414 **Drugs and the Brain** 3
Topics covered include drug treatment of mental illness, and drug abuse/addiction.
PREREQ: PSYC309; PSYC314
RESTRICTIONS: PSYC380 or PSYC334 recommended in addition to Prerequisites.

PSYC 415 **History and Systems of Psychology** 3
Psychology from the early Greeks through the more important "schools" of the 20th century.
PREREQ: Two of the following: PSYC310, PSYC312, PSYC314 or PSYC340 as well as one of PSYC350, PSYC370, PSYC380 or PSYC390.

PSYC 416 **Psychological Perspectives on the Black American** 3
The experience of Black Americans as viewed from a psychological perspective. Psychological theory and research pertaining to black Americans; reactions to oppression, collective behavior, personality development, and life styles. May be cross-listed with BANA432.
PREREQ: PSYC309; and PSYC390 or PSYC303.

PSYC 417 **Animal Behavior** 3
Seminar on naturalistic and experimental investigations of species-specific behavior.
PREREQ: PSYC309.

PSYC 418 **Human Emotions** 3
Emotions, cognition and behavior. Role of emotions in personality and social relationships. Includes laboratory/tutorial session with analysis and presentation of scenes from dramatic literature to illustrate integration of emotion, cognition and action.
PREREQ: PSYC309; and PSYC301 or PSYC370 or PSYC325 or PSYC350.

PSYC 419 **Psychology of Humor** 3
Systematic survey of psychological theories of humor and the empirical basis for them. Undertakes the analysis of cognitive, motivational and social developmental bases of smiling and laughter.
PREREQ: PSYC201, PSYC303 or PSYC325 or PSYC301; and PSYC309.

PSYC 424 **Applied Social Psychology** 3
The application of classical principles of interpersonal behavior to everyday life. Topics covered include persuasion, reciprocation, employee motivation, organizational development, liking and authority.
PREREQ: PSYC309; and PSYC303 or PSYC390.

PSYC 425 **Family Conflict and the Child** 3
Analysis of specific topical areas in child psychology, such as infancy and cognitive and social development. Topics may vary from year to year.
PREREQ: PSYC325 or PSYC350.

PSYC 441 **Computers and Cognition** 3
Introduction to computer models of cognitive processes. Computer models gave rise to the interdisciplinary area of cognitive science. Course covers basic types of models that have been used and a discussion of their psychological plausibility. May be cross-listed with CGSC441.
PREREQ: PSYC340.

PSYC 443 **Topics in Organizational Communication** 3
See COMM442 for course description.

PSYC 444 **The Psychology of Aesthetics** 3
Psychological and psychobiological theories and empirical investigations of aesthetic experience.
PREREQ: PSYC309, PSYC310, or PSYC314.

PSYC 445 **Topics in Adolescent Psychology** 3
Analysis of the physiological, psychological and social factors influencing psychological development from late childhood through adolescence.
PREREQ: PSYC309, and PSYC325 or PSYC350.

PSYC 452 **Language and Thought** 3
A survey of research dealing with the nature of linguistic and cognitive structures, their development and their interaction.
PREREQ: PSYC340.

PSYC 460 **Assessment of Young Children** 3
See IFST452 for course description.

PSYC 462 **Language Acquisition** 4
See EDST462 for course description.
PSYC 466 Independent Study 1-6
PSYC 468 Research 3-6
PSYC 481 Clinical Psychology 3
Introduction to clinical theories, research and practice. Diagnosis, classification and treatment of behavior disorders.
PREREQ: PSYC309, and PSYC334 or PSYC380.
RESTRICTIONS: Psychology majors only
PSYC 482 Controversies in Abnormal Psychology as Portrayed in Movies 3
Uses movies to illustrate certain types of psychiatric diagnoses and a text presenting journal articles representing pro and con views about controversies concerning these disorders. Students discuss the disorders and controversies using the fictionalized characters and events as illustrations.
PREREQ: PSYC380 or PSYC334
RESTRICTIONS: Course limited to Psychology majors or minors, juniors or seniors
PSYC 490 Social Interdependence 3
Presents theoretical and empirical approaches of social psychology to the study of conflict versus cooperation between mutually dependent people. Cooperation/conflict is analyzed in terms of the effects of environmental influence, the reward structure of the relationship, and the interpersonal values of participants.
PREREQ: PSYC309
RESTRICTIONS: Junior and Senior Psychology Majors
PSYC 491 Psychology of Temporal Orientation 3
The psychology of temporality is the scientific study of how temporal frames of reference regarding the past, present and future affect a variety of basic human processes. The purpose of this course is to learn more about these concepts and in the process, learn something about human behavior.
PREREQ: PSYC309 and PSYC390 or PSYC301
RESTRICTIONS: Psychology majors only
PSYC 605 Advanced Social Psychology 3
Contemporary theories of interpersonal behavior, dynamics of social groups and experimental methods for the study of social (communication and interaction) processes.
PREREQ: PSYC303 and PSYC309
PSYC 606 Animal Behavior 3
Seminar on naturalistic and experimental investigations of species-typical behavior.
PSYC 612 Human Psychophysiology 3
Introduction to psychophysiological recording techniques. Elementary anatomy and physiology of the human nervous system. Application of psychophysiological techniques to the investigation of psychopathology, information processing and social psychology. Laboratory demonstration of polygraphic measurement of autonomic and CNS variables with small computer analysis.
PREREQ: PSYC309
RESTRICTIONS: Requires permission of instructor
PSYC 615 History of Cognitive Psychology 3
Review of major concepts in psychology and its philosophical roots that have determined the current theories and models of cognition. May be cross-listed with CGSC301.
PSYC 616 Computer Models of Cognition 3
Survey of computer models for perception, language and problem-solving. Covers representation schemes and control structures used in artificial intelligence models. Emphasis placed on their psychological relevance. May be cross-listed with GSCL416.
RESTRICTIONS: Requires permission of instructor
PSYC 624 Industrial Social Psychology 3
Social psychology applied to problems of productivity, satisfaction, communication and organization.
PREREQ: PSYC303
PSYC 626 Neuroscience I 4
See BISC626 for course description.
PSYC 627 Neuroscience II 3
See BISC627 for course description.
PSYC 640 Text Comprehension 3
Survey of recent theoretical and experimental work being done in the area of text comprehension. Based on primary sources, addresses such topics as the effects of prior knowledge on processing, semantic priming, question answering and hypothesis testing. Requires permission of instructor
PSYC 641 Visual Cognition 3
Reviews recent research findings on how biological systems process visual information. Topics include basic visual processes, object recognition, spatial attention, visual search, visual memory (including imagery) and reading. Considers models derived from cognitive psychology, machine vision and neuroscience. May be cross-listed with CGSC641.
RESTRICTIONS: Requires permission of instructor
PSYC 642 Mental Representation and Memory 3
Human memory can be conceptualized in terms of representation and information storage within various interrelated mental systems. Critically evaluates research on human memory and representation within the context of major cognitive models. May be cross-listed with CGSC642.
RESTRICTIONS: Requires permission of instructor
PSYC 643 Topics in Organizational Communication 3
See COMA642 for course description.
PSYC 650 Cognitive Neuroscience 3
Examines neurophysiological basis for a variety of cognitive processes such as object recognition, selective attention, visual imagery, memory and language. Topics include neural networks, effects of brain damage and neural imaging techniques, such as PET scan and event-related brain potentials. May be cross-listed with CGSC650.
RESTRICTIONS: Requires permission of instructor
PSYC 651 Controversies in Cognitive Psychology 3
Based on empirical research, students critically evaluate selected models of visual perception, attention and human memory. Opposing theoretical perspectives chosen to highlight the controversial areas of cognitive theory.
RESTRICTIONS: Requires permission of instructor
PSYC 668 Research 1-6
PSYC 675 Language Acquisition 4
See EDST675 for course description.
PSYC 681 Clinical Psychology 3
Introduction to clinical theories, research and practice. Diagnosis, classification and treatment of behavior disorders.
PREREQ: PSYC310 or PSYC312
PSYC 692 Social Skills Training for Children 3
See EDST692 for course description.
PSYC 804 Seminar in Human Development 3
Selected research literature in developmental psychology. May be cross-listed with EDST837.
RESTRICTIONS: Requires permission of instructor.
PSYC 807 Group and Interpersonal Processes 3
Addresses basic theoretical and empirical knowledge of group processes, structures and interactions.
RESTRICTIONS: Requires permission of instructor
PSYC 808 Clinical Neuropsychology 3
Presents an overview of the neuroanatomical and biochemical bases of normal and abnormal behavior, the essentials of the neurological examination, a survey of neuropsychological assessment and an examination of several current topics.
PSYC 809 Research Design 3
An overview of methodological issues in the conduct of psychological research, including correlational, experimental, and quasi-experimental studies. Special emphasis on clinical and personality research.
PSYC 810 Information Processing 3
Theories of information processing and psychophysiology.
PSYC 811 Sensory Processes 3
Structure and function of the sense organs, with emphasis on research techniques and methodology.
PREREQ: PSYC627
PSYC 813 Seminar in Intergroup Relations 3
Cognitive, motivational and cultural factors involved in the creation of and reduction of intergroup bias and conflict. Emphasis on theoretical and applied perpectives.
RESTRICTIONS: Requires permission of instructor
PSYC 814 Research Methods in Social Psychology 3
Strategies and techniques of critical analysis of design.
PSYC 815 Theory and Research in Group Behavior 3
Empirical findings and major theories of group behavior. Emphasis on research methodology.
PSYC 817 Individual Intelligence Testing 3
See EDST817 for course description.
PSYC 819 Psychotherapy I 3
Survey of theories, schools and techniques of psychotherapy and critical review of relevant research.
PSYC 820  PSYCHODIAGNOSTICS: OBJECTIVE TRAIT AND BEHAVIORAL ASSESSMENT  3

PSYC 821  FAMILY THERAPY  3
Survey of different models for assessing and treating family dysfunction. Particular emphasis will be placed on marital and parent-child problems. The course objective is to help students develop conceptual and observational skills required for conducting therapy.

RESTRICTIONS: Requires permission of instructor

PSYC 823  APPLIED HUMAN DEVELOPMENT  3
See EDST823 for course description

PSYC 824  COMMUNITY MENTAL HEALTH  3
The community's role in contributing to mental illness and the mode and feasibility of organizing community mental health agencies into a concerted preventive mental hygiene effort. Focuses on the Greater Wilmington community.

PSYC 827  ADVANCED PSYCHOTHERAPY II  3
Schools, theories and techniques of psychotherapy including research on psychotherapy and review of evaluative studies. Supervised practice.
PREREQ: PSYC819.

PSYC 829  ADVANCED PSYCHOPATHOLOGY  3
Nociology and etiology of the behavior disorders of non-organic origin. Theories of psychopathology, including various modes of conceptualizing psychopathology, i.e., medical vs. behavioral and psychosocial models. Reliability and validity of psychodiagnosis; and relevant research and problems of experimental clinical research with institutionalized populations.

PSYC 833  SEMINAR IN EMOTIONS  3
The theories and methods of measuring emotions, as states or traits of humans. Describes a range of methods, including rating, checklist, questionnaire and physiological ones.

PSYC 834  SUPERVISED PRACTICE IN CLINICAL PSYCHOLOGY I  1-3 PF
Limited diagnostic and therapeutic practice in clinical setting under professional supervision.

PSYC 835  SUPERVISED PRACTICE IN CLINICAL PSYCHOLOGY II  1-3 PF
Continuation of PSYC834

PSYC 836  SUPERVISED PRACTICE IN CLINICAL PSYCHOLOGY III  1-3 PF
Continuation of PSYC834 and PSYC835
PREREQ: PSYC834 and PSYC835

PSYC 837  SUPERVISED PRACTICE IN CLINICAL PSYCHOLOGY IV  1-3 PF
Continuation of PSYC834, PSYC835 and PSYC836
PREREQ: PSYC835.

PSYC 845  CHILDHOOD PSYCHOPATHOLOGY  3
See EDST850 for course description

PSYC 850  SEMINAR IN MEMORY  3
Theories of information storage and retrieval;

RESTRICTIONS: Requires permission of instructor

PSYC 851  SEMINAR IN PERCEPTION  3
Major experimental problems and theories: core-context, configuration, topological, association and others.

PSYC 852  SEMINAR IN PERSONALITY  3
Description and measurement of personality; comprehensive theories of personality; and methods of experimental investigation.

PSYC 853  SEMINAR IN LEARNING  3
Current theories of learning; and emphasis on contemporary experimental literature

PSYC 856  SEMINAR IN COGNITIVE PROCESSES  3
Consideration of major theories and empirical research in both individual and group problem solving and decision making

PSYC 858  SEMINAR IN VISUAL PROCESSES  3
Survey of structure and function in the visual system with particular emphasis on the nature of light and stimulus detection, as well as integration and transfer of the neural code.

RESTRICTIONS: Requires permission of instructor.

PSYC 859  SEMINAR IN COOPERATION AND COMPETITION  3
Study of negotiation, bargaining, risk taking and cooperation, in small and large groups.

RESTRICTIONS: Requires permission of instructor.

PSYC 860  PSYCHOLOGICAL STATISTICS  3
Applications to behavior measurement of probability, regression, analysis of variance and covariance, psychometrics and scaling techniques; and design of experiments.
PREREQ: STAT201 or PSYC309, and four courses in psychology

PSYC 861  PSYCHOLOGICAL STATISTICS  3
Applications to behavior measurement of probability, regression, analysis of variance and covariance, psychometrics and scaling techniques; and design of experiments.
PREREQ: STAT201 or PSYC309, and four courses in psychology

PSYC 863  SEMINAR: CHILD PSYCHOLOGY  3
Advanced treatment of the experimental literature in child psychology as it relates to the issue of the "cognitive" vs. "motivational" approach to child development

PSYC 868  RESEARCH  1-6

PSYC 869  MASTER'S THESIS  1-6

RESTRICTIONS: Requires department permission

PSYC 964  PRE-CANDIDACY STUDY  3-12 PF
Research and readings in preparation of dissertation and/or qualifying examinations for doctoral students before admission to candidacy but after completion of all required course work.

RESTRICTIONS: Not open to students who have been admitted to candidacy

PSYC 969  DOCTORAL DISSERTATION  1-12 PF

RUSSIAN

RUSS 105  RUSSIAN I - ELEMENTARY  4
Introduction to the Russian language and development of speaking, listening, reading and writing skills through the use of basic texts.

RUSS 106  RUSSIAN II - ELEMENTARY/INTERMEDIATE  4
Completion of Basic Russian. Increasing mastery of the basic skills of speaking, listening, reading and writing.
PREREQ: RUSS105

RESTRICTIONS: Two to three years of high school Russian acceptable in lieu of Prerequisite.

RUSS 107  RUSSIAN III - INTERMEDIATE  4
Review of grammar, continued practice in speaking and writing, and reading texts of average difficulty.
PREREQ: RUSS106

RESTRICTIONS: Four years of high school Russian acceptable in lieu of Prereq. Satisfies the Arts and Science foreign language requirement.

RUSS 200  RUSSIAN GRAMMAR REVIEW  3
Systematic review of elementary and intermediate Russian grammar, study of complex sentence structure and idioms. Some conversational practice.
PREREQ: RUSS107.

RUSS 205  RUSSIAN CONVERSATION  3
Practical use of the language. Emphasis on topics drawn from contemporary Russian life and literature.
PREREQ: RUSS107.

RUSS 211  RUSSIAN READING AND COMPOSITION: SHORT FICTION  3
Reading and discussion of 20th-century Russian short stories and novellas. Several short compositions. Grammar review where appropriate.
PREREQ: RUSS107.

RUSS 305  RUSSIAN CONVERSATION AND COMPOSITION  3
Discussion of current cultural, social and political topics in Russia and the former republics. Vocabulary building, grammar exercises and frequent compositions.
PREREQ: Any 200 level course conducted in Russian.

RUSS 310  INTRODUCTION TO RUSSIAN LITERATURE I  3
Masterpieces of poetry, narrative prose and drama from the 19th century.
PREREQ: RUSS311.

RUSS 312  INTRODUCTION TO RUSSIAN LITERATURE II  3
Masterpieces of poetry, narrative prose and drama from the 20th century.
PREREQ: RUSS311.

RUSS 325  RUSSIAN CIVILIZATION AND CULTURE  3
Survey of the major cultural, social and political developments in Russia from its inception to the present.
PREREQ: RUSS311.

RUSS 366  INDEPENDENT STUDY  1-3
RUSS 401 ADVANCED RUSSIAN GRAMMAR AND COMPOSITION 3
Selected topics in advanced Russian grammar, with special attention to partipical constructions, verbs of motion, aspect and problems of syntax and word order. Exercises in writing correct and idiomatic Russian.
PREREQ: One 300-level Russian course

RUSS 440 SPECIAL TOPICS: RUSSIAN DRAMA, PROSE OR POETRY 3
Explores one of the three major genres by examining a specific theme. Subject matter varies and will be announced in registration booklet.
PREREQ: Any two 300-level Russian courses
RESTRICTIONS: May be repeated for credit when topics vary

RUSS 455 SELECTED AUTHORS, WORKS AND THEMES 3
Works of one or more outstanding authors or on a special theme.
PREREQ: Two 300-level Russian literature courses
RESTRICTIONS: May be repeated for credit when topics vary

RUSS 465 SEMINAR 3
Various authors and themes.
PREREQ: One 400-level Russian literature course
RESTRICTIONS: May be repeated for credit when topics vary

RUSS 466 INDEPENDENT STUDY 1-3

RUSS 665 SEMINAR 3
Various authors and themes.
RESTRICTIONS: May be repeated for credit when topics vary

SCIENCE

SCEN 101 PHYSICAL SCIENCE 3-4
The structure, processes and concepts of the physical world.
RESTRICTIONS: Requires high school algebra. For non-science students with no physics or chemistry background. Not for physics or chemistry major credit. Only one course from among SCEN 101, PHYS 104, PHYS 201 or PHYS 207 can count toward graduation.

SCEN 102 PHYSICAL SCIENCE 3-4
The structure, processes and concepts of the physical world.
RESTRICTIONS: Requires high school algebra. For non-science students with no physics or chemistry background. Not for physics or chemistry major credit. Only one course from among SCEN 102, PHYS 202 or PHYS 208 can count toward graduation.

SCEN 103 CONCEPTS OF SCIENCE AND TECHNOLOGY 3
Introduction to some of the fundamental science concepts underpinning high technology, emphasizing everyday devices and practical experience, for the development of scientific and computer literacy of non-science majors.
RESTRICTIONS: Requires high school algebra.

SCEN 391 SECONDARY SCIENCE CURRICULUM 3
Content, organization, levels and design of curriculum in secondary-school programs in biology, chemistry, earth science, general science, physical science and physics. Design of a science course; planning major units.
RESTRICTIONS: Must precede SCEN 491.

SCEN 491 TEACHING SCIENCE IN SECONDARY SCHOOLS 4
Techniques, approaches and preparation for teaching science in high school and middle school. Laboratory meets one full morning per week in local high schools and middle schools for observation and initial teaching.
COREQ: EDST 302.

SCEN 492 STUDENT TEACHING SEMINAR: SECONDARY SCIENCE 3 PF
Methods, techniques and problems in student teaching in secondary schools and their solutions. Assertiveness, authority, management, strategies and teaching for understanding.
COREQ: EDDV 400.

SOCIOLOGY

SOCI 201 INTRODUCTION TO SOCIOLOGY 3
An overview of the sociological perspective of the study of society, social organization and social institutions with special emphasis on the social causes and consequences of human behavior.

SOCI 202 SOCIAL DEVIANC 3
Defining deviance, research on deviance and explaining deviance.

SOCI 203 INDIVIDUAL AND SOCIETY 3
Analysis of the social formation of the individual. Particular emphasis on socialization and personality development. The contribution of individual patterns of behavior to the functioning of social systems.

SOCI 204 URBAN COMMUNITIES 3
Urbanization, rural-urban social differences and the organization of urban communities by race, class, ethnicity and stage in the life cycle. May be cross-listed with BAM 204.

SOCI 206 WOMEN AND WORK 3
See WMS 206 for course description.

SOCI 208 WORK IN A GLOBAL ECONOMY 3
The role of work in contemporary society. Social, institutional and cultural influences on work. Special emphasis on problem areas such as job satisfaction, professionalism, career patterns, leisure and occupational choice.

SOCI 209 SOCIAL PROBLEMS 3
Topics may include poverty, intergroup conflict, war, mental illness, aging, adolescence and environmental pollution.

SOCI 210 POPULATION PROBLEMS 3
The interaction between population characteristics and other social and economic factors.

SOCI 211 MEN, CONFLICT AND SOCIAL CHANGE 3
See WOM 211 for course description.

SOCI 213 MEN AND WOMEN IN AMERICAN SOCIETY 3
Designed to provide students with a sociological framework for analyzing sex and gender relations in contemporary American society. Topics include the social construction of gender, patterns of sex-role socialization, gender stratification in the paid work force, gender relations in the family and other social institutions. May be cross-listed with WOM 213.

SOCI 242 SOCIETY AND THE HEALTH PROFESSIONS 3
See CSCC 242 for course description.

SOCI 270 FAMILIES AND DEVELOPMENTAL DISABILITIES 3
See IFST 270 for course description.

SOCI 301 INTRODUCTION OF SOCIOLOGICAL RESEARCH 4
Survey of research methods and data analysis employed in sociology.
PREREQ: SOCI 201, and either MATH 114 or MATH 115.
RESTRICTIONS: Strongly recommended - Junior status and 12 social science credits.

SOCI 303 JUVENILE DELINQUENCY 3
Historical definition of delinquency, abuse and neglect, research in delinquency, causes and treatment of delinquents. May be cross-listed with CRJU 303.
PREREQ: SOCI 201 or SOCI 209.

SOCI 304 CRIMINOLOGY 3
The nature, kinds and causes of crime. Criminal liability, criminal careers and organized racketeering. May be cross-listed with CRJU 304.
PREREQ: SOCI 201 or SOCI 202 or SOCI 209.

SOCI 305 SOCIAL CLASS AND INEQUALITY 3
Internal differentiation as a basis for inequality and differential life chances of human societies.

SOCI 306 PERSONALITY AND SOCIETY 3
Interaction of personality and society, including such segments as complex organizations and small groups. Particular emphasis on the social formation of personality, and its role in the production of various modes of social behavior and the dynamics of social change.
PREREQ: SOCI 201, SOCI 203 or PSYC 201.

SOCI 308 THE FAMILY 3
The comparative study of the family in various societies provides a background for the analysis of family organization in modern America.
PREREQ: SOCI 201 or SOCI 202 or SOCI 203 or SOCI 209.

SOCI 310 SOCIOLOGY OF HEALTH CARE 3
Professionalization of health occupations, hospitals as social systems, medical education and practice organizations, health care organizations and their interrelationships (politics of health), and health service patterns. May be cross-listed with CSCC 310.
PREREQ: SOCI 201.

SOCI 311 HOSPITALS 3
Hospitals, asylums, nursing homes and other medically organized inpatient facilities viewed as health care settings and as organizations in society. Includes considerations of hospitals as organizations, as research settings, as locations where health professionals work and as sites of patient experience.
May be cross-listed with CSCC 311.

SOCI 312 THEORIES OF SOCIETY 3
Covers writings of Karl Marx, Emile Durkheim, Max Weber and related current approaches. Focuses on theoretical perspectives concerned with social development, social conflict, solidarity, social class and gender.
PREREQ: SOCI 201.
SOCI 320  PERSONALITY AND POLITICS  3
The role of personality in political behavior. Considerations include the social and psy-
chological motivations for political activity and the differential relationship of personality to
variations in political systems, roles, ideologies and dynamics, such as political con-
sensus and cleavage. Attention given to particular methods of research in this specific
area of social behavior.
PREREQ: SOCI201 or PSY203 or PSY201 or POSC105

SOCI 322  CROWDS, CULTS AND REVOLUTIONS  3
Analysis of forms of behavior in relatively unstructured situations such as crowds, panics,
riots and demonstrations; and processes of interaction: susceptibility, contagion, polar-
ization and communication
PREREQ: SOCI201

SOCI 327  SOCIOLOGY OF ORGANIZATIONS  3
Business enterprises, the military, governmental bureaus and other large-scale organiza-
tions. Bureaucratic structure, internal systems of status and authority, division of labor,
social control, and the individual in the organization
PREREQ: SOCI201.

SOCI 329  INTERNATIONAL MIGRATION  3
See SOCI329 for course description

SOCI 330  POPULATION, LAW AND SOCIETY  3
Interrelationships among population, law and social structure with an emphasis on ana-
yzing strategies of adaptation to change. Introduction to demographic techniques; con-
temporary issues such as family planning, population policies, migration, marriage and
divorce. May be cross-listed with CRJU330

SOCI 341  WELFARE AND SOCIETY  3
Institutional apparatus created to deal with the welfare problems of an industrial society,
development of welfare institutions, their structure and functioning
PREREQ: 18 credit hours in sociology, psychology, political science or economics

SOCI 343  SOCIETY, POLITICS AND HEALTH CARE  3
See SOCI343 for course description

SOCI 345  SOCIOLOGY OF LAW  3
Analysis of law as a social process in both historical and comparative perspective.
Focuses on various theories of law and society and relevant empirical research. May be
cross-listed with CRJU345

SOCI 346  SOCIOLOGY OF AGING  3
Empirical and theoretical investigation of the aging process
PREREQ: SOCI201 or SOC202 or SOC203 or PSYC201

SOCI 348  THEORIES OF SOCIAL WORK PRACTICE  3
Methods of social work practice; casework, group work, community organization; socio-
logical and psychological foundations underlying social services. May be cross-listed
with CRJU348
PREREQ: SOCI201

SOCI 355  COMPUTERS, ETHICS AND SOCIETY  3
See CSCC355 for course description

SOCI 360  SOCIOLOGY OF RELIGION  3
Sociological analysis of major religions and the societies with which they have been
associated; social settings of particular systems of belief; the relation of status; religious
affiliation and personal behavior in modern societies
PREREQ: SOCI201

SOCI 361  RACE, POWER AND SOCIAL CONFLICT  3
The structure of minority groups; processes of conflict, competition and cooperation;
analysis of stratification patterns as they affect and are affected by minority groups. May be
cross-listed with BAM6361
PREREQ: SOCI201

SOCI 362  SOCIOLOGY OF MASS COMMUNICATION  3
Impact of mass media - television, film, radio and press - upon social attitudes, values
and behavior. Problems of audience feedback, the media in social crisis and issues of
control.
PREREQ: SOCI201

SOCI 366  INDEPENDENT STUDY  1-3

SOCI 376  AMERICAN SOCIAL CHARACTER  3
Nature of social character in America, particularly as influenced by recent sociocultural
change. Dominant and variant systems of beliefs, ideologies, values, motivations, psy-
chodynamics, personality types and social behavior.

SOCI 380  DEVELOPMENT AND MODERNIZATION  3
Contemporary issues of social, political and economic change in developing societies.
Dominant theories of modernization and development. Roles of men and women in
developing societies.

SOCI 389  PRACTICUM TEACHING SOCIOLOGY  3 PF
Practical experience in undergraduate education is gained by serving as a discussion
leader in a course taught by a regular member of the faculty
RESTRICTIONS: Requires permission of instructor. Not for major credit

SOCI 401  ADVANCED SOCIOLOGICAL METHODS  3
Conceptualization, design, data collection and data analysis in sociological research
May be cross-listed with CRJU401

SOCI 402  URBAN STUDIES PRACTICUM AND SEMINAR  4 PF
Field experience and related seminar. Placement in urban planning and service agencies
where students work for approximately 160 hours under professionally trained supervi-
sors. Students meet in a weekly seminar with coordinator.
PREREQ: SOCI204

SOCI 407  SOCIOLOGY OF SEX AND GENDER  3
Seminar on sex and gender relations from a sociological perspective. Surveys current
research on gender stratification in the paid work force, the feminization of poverty, gen-
der relations in the family, sexual violence, and feminism as a social movement. Special
attention given to current theoretical debates on the origins and persistence of sexual
inequality and the intersection of gender with race and class in patterns of social stratifi-
cation. May be cross-listed with WOMS407
PREREQ: SOCI201, and either SOCI123 or WOMS201
RESTRICTIONS: Restricted to junior and senior sociology and women's studies majors

SOCI 410  HEALTH SERVICES PRACTICUM AND SEMINAR  4 PF
Field experience and related seminar. Placement in health service settings where student
works for about 160 hours under supervision of health service administrator. Students
meet in a weekly seminar with coordinator. May be cross-listed with CSCC410
PREREQ: SOCI310 or SOCI311
RESTRICTIONS: Requires permission of instructor

SOCI 411  TECHNIQUES OF DEMOGRAPHIC ANALYSIS  3
Study of demographic equation (fertility, mortality and migration), population processes
(composition and distribution) and the use of computers to analyze demographic data.
May be cross-listed with CRJU411
PREREQ: SOCI301

SOCI 412  RESEARCH PRACTICUM  4 PF
Field experience and related seminar. Placement in research, planning and service agen-
ces where students work for approximately 160 hours under professionally trained
supervisors. Students meet in a weekly seminar with coordinator.
PREREQ: SOCI301
RESTRICTIONS: Requires permission of instructor

SOCI 414  DATA ANALYSIS  3
Methods of analyzing data in sociological research focusing on multivariate approach-
es. May be cross-listed with CRJU414
PREREQ: SOCI301
RESTRICTIONS: Requires permission of instructor

SOCI 415  RACE, CLASS AND GENDER  3
Analysis of current American social issues that show interrelationship of race, class and
gender. Readings from sociology, Afro-American studies, feminist studies, history and lit-
erature. May be cross-listed with BAM5415 and/or WOMS5415

SOCI 416  SOCIAL THOUGHT AND CONTEMPORARY SOCIETY  3
Seminar focuses on ways in which social thought defines and analyzes contemporary
society. Explores how alternative theories and methods serve to create knowledge about
contemporary concerns with everyday life, democracy, equality, social structure and
power.
PREREQ: SOCI312

SOCI 428  CORPORATE CRIME  3
Nature and causes of the deviant behaviors and crimes of large organizations. How
organizations act, are accused of deviance and defend themselves in cases such as price-fixing,
sale of unsafe drugs and illegal spying. May be cross-listed with CRJU428

SOCI 430  COMPARATIVE SOCIOLOGY  3
Examines sociological similarities and differences between the United States and a select-
ated country on a number of critical sociological topics. Topics include ethnic and religious
diversity, culture, demographic structure, social institutions, social stratification and
urbanization
RESTRICTIONS: Requires permission of instructor. Only 3 credits from this course may
apply toward departmental requirement of six 400-level credits

SOCI 435  SOCIOLOGY OF AMERICAN JEWRY  3
Examines the demographic, socioeconomic; cultural and institutional dimensions of the
US Jewish population in the context of models of social integration and in comparison to
other immigrant groups in the population. These dimensions are used to discuss current
issues facing this population subgroup. May be cross-listed with JWST435
PREREQ: SOCI201
SOCIO 441 SOCIAL WELFARE PRACTICUM AND SEMINAR 4 PF
Field experience and related seminar. Placement in social service agencies where students work for approximately 160 hours under professionally trained supervisors; students meet in a weekly seminar with coordinator. 
PREREQ: SOCI341
RESTRICTIONS: Requires permission of instructor.

SOCIO 442 LAW AND SOCIETY PRACTICUM AND SEMINAR 4 PF
Field experience and related seminar. Placement in court, law firm or other law-related institution where students work for approximately 160 hours under professionally trained supervisors; weekly seminar with program coordinator. 
PREREQ: SOCI345
RESTRICTIONS: Requires permission of instructor.

SOCIO 448 COMMUNITY-BASED TREATMENT 3
Explores issues related to the appropriateness and design of community-based programs for the mentally disabled, substance abusers, the homeless, dependent children, etc. Emphasis on analyzing client needs and community resources, and on understanding the perspectives of clients, staff and neighbors about these programs. May be cross-listed with CRJU448.

SOCIO 450 POLITICAL SOCIOLOGY 3
Analysis of political organization and action, including evaluation of major approaches. Case studies of political structures and behavior.
PREREQ: SOCI201

SOCIO 454 LAWYER'S ETHICS 3
An exploration of the ethical, moral and legal dilemmas that confront attorneys in the practice of law and how they attempt to resolve them. May be cross-listed with CRJU454.
PREREQ: SOCI201 and three additional sociology courses
RESTRICTIONS: Open to junior and senior sociology majors only.

SOCIO 456 LAWYERS AND SOCIETY 3
Seminar focusing upon the social organization and dynamics of the legal profession. Topics include professional associations, law school socialization, professional ethics and law practice. May be cross-listed with CRJU456.
PREREQ: SOCI201 and three additional sociology courses.

SOCIO 460 WOMEN IN INTERNATIONAL DEVELOPMENT 3
Understanding of international development process in third world countries by examination of the roles of men and women. Analyzes processes of development with emphasis on women's participation and/or exclusion. Examination of development at the project proposal and program implementation level. Hands-on experience in practical project development and proposal presentation skills. May be cross-listed with GEOG460, IPSY460, and/or WOMS460.

SOCIO 464 INTERNSHIP 1-4 PF
Provides students an opportunity to apply sociological theory and research while working in an agency or other organizational setting under supervision of department faculty. Must complete an internship agreement and secure approval from faculty member to sponsor internship.

SOCIO 466 INDEPENDENT STUDY 1-3

SOCIO 470 ENVIRONMENTAL SOCIOLOGY 3
A substantive and theoretical introduction to the major issues in environmental sociology: the emergence and development of the environmental movement; the development of environmental issues; and how environmental issues are related to structural, contextual and perceptual factors.
PREREQ: SOCI201 and SOCS12
RESTRICTIONS: Requires upper division status.

SOCIO 495 FIELD EXPERIENCE IN CRIMINAL JUSTICE 4 PF
See CRJU495 for course description.

SOCIO 604 SOCIAL ORGANIZATION: URBAN COMMUNITY 3
Conditions underlying urban residential patterns and the consequences of these patterns for local community activities.

SOCIO 605 DATA COLLECTION 3
A survey of methods and techniques for defining research problems and for gathering and ordering data in sociological research. 
RESTRICTIONS: Requires permission of instructor.

SOCIO 606 QUALITATIVE METHODOLOGY 3
Focuses on research design, the logic of inquiry and an elaboration of selected issues introduced in SOCI605. Special emphasis on epistemological issues, methodological concerns central to the social sciences and non-positivistic research strategies and techniques.

SOCIO 607 SOCIOLOGY OF SEX AND GENDER 3
Reviews current research and theory in the sociology of sex roles and gender with particular attention to issues arising from the gender division of labor, feminism and social change, gender and the structure of social institutions, and the interaction of gender, race and class inequality. Introduces sociological theory and methodology as used and revised by scholars working on gender issues.

SOCIO 608 FAMILY, WORK AND GENDER 3
Brings together studies of the workplace and studies of the family with special focus on areas of overlap. Throughout the course there will be a careful analysis of gender roles and the work/family overlap as well as focused discussion on issues of family policy.
RESTRICTIONS: Requires permission of instructor.

SOCIO 609 SOCIAL STRATIFICATION 3
Reviews major theoretical and empirical work in social stratification.

SOCIO 611 TECHNIQUES OF DEMOGRAPHIC ANALYSIS 3
Study of demographic equation (fertility, mortality and migration), population processes (composition and distribution) and the use of computers to analyze demographic data.

SOCIO 612 DEVELOPMENT OF SOCIOLOGICAL THEORY 3
Historical survey of the development of sociology and sociological theory beginning with the period of the Social Contract theorists through the classic European theorists of 19th century.

SOCIO 613 RESEARCH AND SOCIAL THEORY 3
Focuses on the relations between theory and method in social research.

SOCIO 614 DATA ANALYSIS 3
Methods of analyzing data in sociological research focusing on multivariate approaches.
PREREQ: SOCI605

SOCIO 621 THEORIES AND APPROACHES IN SOCIAL DEVIANC 3
General and specific theoretical orientations in the analysis of social deviance.

SOCIO 622 COLLECTIVE BEHAVIOR 3
Process and mechanisms operating in panics, riots, demonstrations and other disruptions of social order.

SOCIO 626 SOCIOLOGY OF ORGANIZATIONS 3
Cultural context of organizational behavior; organizational input-output systems, structures and dynamics. Case studies of industrial, educational, medical and voluntary action organizations.

SOCIO 627 THEORIES OF COMPLEX ORGANIZATION 3
Development of theories of organizations: systems of authority and power, communication, reward and penalty, dynamics of conflict and accommodation between and within organizations, and problems of induction, placement, coordination and succession within organizations.

SOCIO 628 CORPORATE AND GOVERNMENTAL DEVIANC 3
Analysis and cases of internal organizational behavior when external efforts are made to have these behaviors treated as deviant. Also defenses used by the accused organizations, and preconditions for, and consequences of, successfully labeling and sanctioning an organization as deviant.

SOCIO 629 ORGANIZATIONAL CAREERS 3
Relationship between occupational careers and the organizations in which they are pursued. Process of recruitment, socialization, placement, promotion and succession.

SOCIO 650 POLITICAL SOCIOLOGY 3
Analysis of political organization and action, including evaluation of major approaches. Case studies of political structures and behavior.

SOCIO 655 LAW AND SOCIETY 3
Historical and structural development of legal systems. Emphasis on comparing legal systems in various cultures from Roman and Oriental law to Anglo-American legal systems.

SOCIO 659 SOCIAL CONTROL: THEORIES AND PRACTICES 3
Reviews the concept of control as a sociological category and examines the relationship of social control to other systems of inequality. Also evaluates sociological theories of social control and the role of government in that process.

SOCIO 681 CURRENT ISSUES IN SOCIAL THEORY 3
Deals with current controversies in social theory such as the public/private distinction, the development of symbolic interactionism and Neo-Marxism.
RESTRICTIONS: Must have completed one graduate-level course.

SOCIO 835 SEMINAR IN CRIMINAL AND DELINQUENT BEHAVIOR 3
A review of the basic issues in the sociological study of criminal behavior, including definition and measurement, and the relationship between age, gender, race, peers, family, class and economy and crime.

SOCIO 836 SEMINAR IN CRIMINAL AND DELINQUENT BEHAVIOR 3
An analysis of the major forms of criminal behavior such as violent crime, property crime, public order crime, organized crime, white collar crime and juvenile delinquency.

SOCIO 869 MASTER'S THESIS 1-6

SOCIO 875 PROPOSAL WRITING 3
Focuses on all aspects of grant proposal writing and reviewing. Funded and disapproved grant applications analyzed and critiqued. Mandatory student preparation of a complete grant application to be reviewed on campus by sitting members of NIH review committees.
RESTRICTIONS: Requires 30 hours of graduate study, including 3-6 hours of methods courses. Open only to advanced sociology/criminology graduate students.

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SPANISH

SPAN 101 ELEMENTARY SPANISH I 3
Introduction to the Spanish language and a development of speaking, listening, reading and writing skills through the use of basic texts. Language laboratory work as needed.
PREREQ: SPAN101 or SPAN105

SPAN 102 ELEMENTARY SPANISH II 3
Completion of basic Spanish
PREREQ: SPAN101 or SPAN105

SPAN 105 SPANISH I - ELEMENTARY 4
Introduction to the Spanish language and a development of speaking, listening, reading and writing skills through the use of basic texts. Language laboratory as needed.

SPAN 106 SPANISH II - ELEMENTARY/INTERMEDIATE 4
Completion of basic Spanish. Increasing mastery of the basic skills of speaking, listening, reading and writing
PREREQ: SPAN105
RESTRICTIONS: Two to three years of high school Spanish acceptable in lieu of Prerequisite.

SPAN 107 SPANISH III - INTERMEDIATE 4
Review of grammar, continued practice in speaking and writing, and reading texts of average difficulty.
PREREQ: SPAN106
RESTRICTIONS: Four years of high school Spanish acceptable in lieu of Prereq. Satisfies the Arts and Science foreign language requirement.

SPAN 111 INTERMEDIATE SPANISH I 3
Review of grammar. Increasing mastery of the basic skills of speaking, listening, reading and writing
PREREQ: SPAN102 or SPAN106
RESTRICTIONS: Three years of high school Spanish acceptable in lieu of Prereq.

SPAN 112 INTERMEDIATE SPANISH II 3
Continued practice in speaking and writing, reading texts of average difficulty, grammar review as needed.
PREREQ: SPAN111
RESTRICTIONS: Four years of high school Spanish acceptable in lieu of Prereq. Satisfies the Arts and Science foreign language requirement.

SPAN 200 SPANISH COMPOSITION AND GRAMMAR 3
Intensive study of selected grammatical topics (subjunctive, ser, estar, pretense and imperfect). Vocabulary exercises and short compositions.
PREREQ: SPAN107 or SPAN112

SPAN 201 SPANISH READING AND COMPOSITION 3
Major emphasis on reading development, composition and literary analysis.
PREREQ: SPAN200.

SPAN 205 SPANISH CONVERSATION 3
Practical use of Spanish by means of oral reports and discussions. Emphasis on improvement of basic conversational skills. Grammar review where appropriate, and/or some written work.
PREREQ: SPAN107 or SPAN112, or one 200-level course
RESTRICTIONS: Prerequisites require a minimum grade of B. Not intended for native speakers

SPAN 206 CULTURE THROUGH CONVERSATION 3
Discussion of topics drawn from contemporary Spanish or Latin American life. For students who wish to broaden their knowledge of Hispanic culture while improving their oral and aural language skills.
PREREQ: SPAN107 or SPAN112

SPAN 207 CONTEMPORARY LATIN AMERICA I 3
Introduction to contemporary Latin America, its culture, its people, their way of life and the issues confronting them.
RESTRICTIONS: Taught abroad, in both English and Spanish. Not for major credit. Does not satisfy Arts & Science foreign language requirement. May be repeated for credit when taken on different study abroad programs.

SPAN 208 CONTEMPORARY SPAIN I 3
Introduction to contemporary Spain, its culture, its people, their way of life and the issues confronting them.
RESTRICTIONS: Taught abroad, in both English and Spanish. Not for major credit. Does not satisfy Arts and Science foreign language requirement.

SPAN 250 INTRODUCTION TO BUSINESS SPANISH 3
Familiarizes students with characteristics of business Spanish (terminology, syntactical patterns, etc.) and policies and practices of the Hispanic business community.
PREREQ: SPAN107 or SPAN112

SPAN 254 LATIN AMERICAN POLITICS IN THE PRESS 3
Students will explore topics in contemporary Latin American politics as expressed in the news media. The emphasis of the course will be on current events related to the internal and external politics of Latin America. Focus of the study will be the Latin American press: newspapers and magazines printed in the Spanish language.
PREREQ: Any 200-level course taught in the Spanish language.

SPAN 255 SPANISH POLITICS IN THE PRESS 3
Explores topics in contemporary Spanish politics as expressed in the news media. Emphasis on current events related to the internal and external politics of Spain. Focus is the Spanish press: newspapers and magazines printed in the Spanish language.
PREREQ: Any 200-level course taught in the Spanish language.

SPAN 301 SURVEY OF SPANISH LITERATURE 3
Development of Spanish literature from its origins through the 17th century. Study of representative works, discussions and collateral readings.
PREREQ: SPAN201

SPAN 302 SURVEY OF SPANISH LITERATURE 3
Spanish literature from the 18th century to the present. Selection of representative works, discussions and collateral readings.
PREREQ: SPAN201

SPAN 303 SURVEY OF SPANISH-AMERICAN LITERATURE 3
Representative works in all genres of Latin American literature from pre-Columbian to Modernism.
PREREQ: SPAN201

SPAN 304 SURVEY OF SPANISH-AMERICAN LITERATURE 3
Representative works in all genres of Latin American literature in the 20th century.
PREREQ: SPAN201

SPAN 305 ORAL COMMUNICATION 3
For individuals with a comprehensive knowledge of Spanish grammar and vocabulary. Emphasis on refinement of expression of abstract ideas as well as mastery of practical communication.
PREREQ: SPAN200
RESTRICTIONS: Not intended for native speakers

SPAN 306 PRACTICAL ORAL/Written Expression 3
Strengthens skills in grammar and vocabulary in preparation for advanced courses. Includes oral exposes, discussion of articles and videos, textual analysis and compositions.
PREREQ: Any two 200-level Spanish courses conducted in Spanish.

RESTRICTIONS: Taught abroad only.

SPAN 308 CONTEMPORARY SPAIN II 3
Discussion and study of issues related to contemporary cultural, political and social developments in Spain, including its place in today's European community.
PREREQ: Any two 200-level Spanish courses taught in the Spanish language.
RESTRICTIONS: Taught abroad in and Spanish.

SPAN 314 SPANISH PHONETICS AND PHONOLOGY 3
PREREQ: SPAN200.
RESTRICTIONS: Recommended for prospective teachers.

SPAN 325 SPANISH CIVILIZATION AND CULTURE 3
Survey of geography, history, art and society of Spain.
PREREQ: SPAN200

SPAN 326 LATIN AMERICAN CIVILIZATION AND CULTURE 3
Survey of geography, history, art and society of Latin American lands.
PREREQ: SPAN200

SPAN 350 ADVANCED BUSINESS SPANISH 3
Development of strategies to initiate and maintain oral and written communication in the world of business. Practice in speaking Spanish in business situations, letter writing and article reading. Functional and cultural approach.
PREREQ: Any two 200-level Spanish courses, one preferably being SPAN250.

SPAN 355 SPECIAL TOPICS 3
Explores an area of special interest in Spanish literature or culture studies. Subject matter varies and will be announced in the registration booklet.
PREREQ: SPAN200.
RESTRICTIONS: May be repeated for credit when topics vary.
SPAN 443 MEXICAN LITERATURE 3
Representative authors from the Colonial period to the present.
PREREQ: One SPAN300-level survey of literature.

SPAN 447 CONTEMPORARY HISPANIC FICTION BY WOMEN 3
Explores current fiction by women in Spain and Spanish America. Analyzes selected works as individual literary creations, and also situates them in their cultural, historical and aesthetic contexts, using appropriate critical methodologies.
PREREQ: One 300-level survey of Spanish literature course.

SPAN 451 CONTEMPORARY SPANISH POETRY 3
Analysis of Spanish poetry from Becccher to the present day.
PREREQ: One SPAN300-level survey of literature.

SPAN 455 SELECTED AUTHORS, WORKS AND THEMES 3
Works of one or more outstanding authors or on a special theme.
PREREQ: One 300-level Spanish literature course.
RESTRICTIONS: May be repeated for credit when topics vary.

SPAN 462 SPANISH ESSAY AND CRITICISM OF THE TWENTIETH CENTURY 3
Study of contemporary critical works and essays.
PREREQ: One SPAN300-level survey of literature.

SPAN 466 INDEPENDENT STUDY 1-3

SPAN 468 THE THEATRE OF THE SPANISH GOLDEN AGE AND ITS LEGACY 3
Compares the masters of the Golden Age Theatre with today's internationally-known Spanish playwrights. Studies the comedies of Tirso de Molina, Lope de Vega and Calderon de la Barca, and finds their legacy in the plays of Gasset, Orozco, Garcia Lorca and Casares. Investigates the sources and interpretation of the contemporary theatre, and how they have been influenced by the earlier dramatists.
PREREQ: One SPAN300-level survey of literature.

SPAN 484 CONTEMPORARY SPANISH THEATRE 3
Twentieth-century Spanish theatre as a reflection of and commentary on society. Principal authors: Garcia Lorca, Bueno Vallejo and Sastre.
PREREQ: One SPAN300-level survey of literature.

SPAN 601 ADVANCED SPANISH GRAMMAR 3
Systematic study of standard written and oral Spanish syntax. Translation and syntactic exercises.

SPAN 603 HISTORY OF THE SPANISH LANGUAGE 3
History of the language and the influence of the pre-Roman strata, Latin, Germanic language and Arabic. Historical phonology and morphology.

SPAN 615 LATIN AMERICAN LITERATURE AND ITS POLITICAL CONTEXT 3
In-depth analysis of selected works by contemporary Latin American authors, focusing on techniques used by these writers to reveal the political upheaval that has affected Latin America in recent years.

SPAN 616 CERVANTES: DON QUIJOTE 3
The reading of Don Quijote in Spanish; major themes of the book. The life and times of Cervantes. Antecedents to Don Quijote in Spanish literature. The purpose of Don Quijote. Introduction to the language of Cervantes.
PREREQ: One SPAN300-level survey of literature.

SPAN 617 HISPANIC NOBEL PRIZE AUTHORS 3
Covers the works of Spanish and Latin American Nobel Prize authors - Echegaray, Benavente and Martirez, Mistral, Jimenez, Asturias, Alexandre, Neruda and Garcia Marquez - in relation to their cultural milieu on the regional, national and international levels and in relation to their authors' biographies.
PREREQ: One SPAN300-level survey of literature.

SPAN 618 GOD, MAN AND WOMAN 3
Analysis of the presentation of God, man and woman in a selection of narrative poems, dramas and novels from the 15th to the 17th centuries. Authors studied include Santillana, Diego de San Pedro, Alemán, Juan de la Cueva, Cervantes, Luis de Leon, Gracian and Quevedo.

SPAN 620 STUDIES IN THE LITERATURE OF THE SPANISH GOLDEN AGE 3
Study of contemporary critical works and essays.

SPAN 629 POSTWAR SPANISH NARRATIVE 3
The Spanish novel from 1962 to the present. Focuses on novels by leading authors such as Luis Martin-Santos, Juan Goytisolo, Juan Benet, Carmen Martin Gaite, Ana Maria Cuesta and Esther Tusquets. Analysis of these works grounded in international literary theory and criticism.
PREREQ: One SPAN300-level survey of literature.

SPAN 630 LATIN AMERICAN NOVEL AND CINEMA 3
Study of a selection of novels of the 20th century that have brought international recognition to the Latin American writers. These novels depict the social, economic, political and cultural traits of their respective countries. Film versions of some of the novels illustrate artistic interpretations of the subject matter.

SPAN 633 MODERN SPANISH LITERATURE 3
Study of novels of the 20th century considered as an artistic expression of the thought and life of the Hispanic world.
PREREQ: One SPAN300-level survey of literature.

SPAN 634 MODERN SPANISH LITERATURE 3
Study of the literature from the early lyric poetry to the 15th century.

SPAN 636 STUDIES IN THE LITERATURE OF THE SPANISH GOLDEN AGE 3
The poetry and prose of the 16th and 17th centuries.
SPANISH

SPAN 639 POSTWAR SPANISH NARRATIVE 3
Covers the Spanish novel from 1962 to the present. Focuses on novels by leading
authors such as Luis Martin-Santos, Juan Goytisolo, Juan Benet, Carmen Martín Gaite,
Ana María Moix and Esther Tusquets. Analysis of these works is grounded in internation-
al literary theory and criticism.

SPAN 641 THE CONTEMPORARY SPANISH AND SPANISH-AMERICAN
NOVEL 3
Study of the novel of the 20th century considered as an artistic expression of the thought
and life of the Hispanic world.

SPAN 643 MEXICAN LITERATURE 3
Representative authors from the Colonial period to the present.

SPAN 647 CONTEMPORARY HISPANIC FICTION BY WOMEN 3
Explores current fiction by women in Spain and Spanish America. Analyzes selected
works as individual literary creations, and also to situate them in their cultural, historical
and aesthetic contexts, using appropriate critical methodologies.

SPAN 651 CONTEMPORARY SPANISH POETRY 3
Analysis of Spanish poetry from Becquer to the present day. Special emphasis on
lyristics.

SPAN 655 SELECTED AUTHORS, WORKS AND THEMES 3
Works of one or more outstanding authors or on a special theme
RESTRICTIONS: May be repeated for credit when topics vary.

SPAN 662 SPANISH ESSAY AND CRITICISM OF THE TWENTIETH
CENTURY 3
Study of contemporary critical works and essays.

SPAN 682 THE THEATRE OF THE SPANISH GOLDEN AGE AND ITS
LEGACY 3
Compares the masters of the Golden Age Theatre with today's internationally-known
Spanish playwrights. Studies the comedies of Tirso de Molina, Lope de Vega, Calderon
de la Barca and finds their legacy in the plays of Saura, Zarilla, Garcia Lorca and
Casona. Investigates the sources and interpretation of the contemporary theatre, and
how they have been influenced by the earlier dramatists.

SPAN 684 CONTEMPORARY SPANISH THEATRE 3
Twentieth-century Spanish theater as a reflection of and commentary on society. Principal
authors: Garcia Lorca, Buero Vallejo and Sastre.

SPAN 869 MASTER'S THESIS 1-6
Study of selected topics, authors and works in the various fields of Spanish literature.
Variable content. Emphasizes preparation of seminar presentations and term papers.
RESTRICTIONS: May be repeated for credit when topics vary.

STATISTICS

STAT 200 BASIC STATISTICAL PRACTICE 3
Uses real data from a variety of disciplines to explore topics in data analysis, estimation
and inference such as graphical displays, estimation of and hypothesis tests on means
and proportions, sampling distributions, confidence intervals, analysis of variance, sim-
ple linear regression, chi-square tests for independence.
PREREQ: College algebra

STAT 201 INTRODUCTION TO STATISTICS I 3
Exploratory analysis, basic probability, discrete and continuous distributions, sampling
distributions and confidence intervals, and hypothesis tests on means and proportions.
Emphasis is on applications in business and economics. Statistical computing is an inte-
gral part of this course.
PREREQ: College algebra

STAT 202 INTRODUCTION TO STATISTICS II 3
Two-sample tests on means and proportions, chi-square analysis of contingency tables,
complete and randomized block designs, analysis of variance, simple linear and multi-
ple regression, model diagnostics, quality control, time series analysis. Emphasis on
applications in business and economics. Statistical computing an integral part of course.
PREREQ: STAT201

STAT 205 STATISTICAL METHODS 4
Descriptive statistics, graphical displays, sampling, variation, normal distribution, estima-
tion, hypothesis testing, one-way analysis of variance, simple linear regression and good-
ness of fit. Laboratory covers use of statistical packages on mainframe and microcomputers.
PREREQ: MATH210 or MATH230

STAT 300 STATISTICAL METHODS AND THEORY 4
Exploratory data analysis, probability, estimation, classical statistical inference, regres-
sion, multiple regression. Laboratory covers use of statistical packages.
PREREQ: MATH210 and MATH243

STAT 366 INDEPENDENT STUDY 1-6

STAT 370 INTRODUCTION TO STATISTICAL ANALYSIS I 3
Basic probability, continuous, discrete and joint distributions, distribution of functions of
random variables; order statistics; expected value and central limit theorem
PREREQ: MATH222 or MATH243

STAT 371 INTRODUCTION TO STATISTICAL ANALYSIS II 3
Distributions of common statistics, sampling techniques, estimation, confidence intervals,
hypothesis testing and selected topics
PREREQ: STAT370

STAT 418 SAMPLING METHODS 3
Types of sampling, census vs. survey, methods of sample selection, sampling and non-
sampling errors. Planning and execution of surveys, and data collection in selected fields
of application
PREREQ: STAT371

STAT 420 DATA ANALYSIS AND NONPARAMETRIC STATISTICS 3
Techniques of exploratory and graphical data analysis for univariate and multivariate
data sets, and numerical and categorical variables. Emphasis on selection of proper pro-
cedure. Non-parametric techniques of estimation testing and curve smoothing
PREREQ: STAT371

STAT 450 STATISTICS FOR THE ENGINEERING AND PHYSICAL SCIENCES 3
Combinatorial probability; distribution theory; estimation and hypothesis testing. Experi-
mental design, analysis of variance and regression theory
PREREQ: MATH243

STAT 466 INDEPENDENT STUDY 1-6

STAT 555 STATISTICS FOR BUSINESS AND ECONOMICS 3
Statistical inference, modern decision making, measures of association, classical time
series analyses, forecasting and non-parametric techniques
PREREQ: MATH211, MATH241 or MATH555

STAT 600 FUNDAMENTALS OF STATISTICAL ANALYSIS 3
Basic topics in mathematics of most importance in probability and statistics. Selected top-
ics in analysis. Arithmetic operations on arrays and matrices, least squares approximation
and the projection theorem.

STAT 601 PROBABILITY THEORY AND APPLICATIONS 3
See MATH630 for course description.

STAT 602 MATHEMATICAL STATISTICS 3
Derived sampling distributions, decision theory, estimation theory, multivariate normal,
hypotheses testing and special topics.
PREREQ: MATH650 or STAT1601.

STAT 611 REGRESSION ANALYSIS 3
Simple linear and nonlinear regression. Subset regression; principal component and
ridge regression. Introduction to experimental design and design models.
PREREQ: STAT202, STAT371 or STAT555

STAT 615 DESIGN AND ANALYSIS OF EXPERIMENTS 3
Fundamental principles of design, randomized designs, Latin squares, sources of error,
components of error. Factorial designs, response surfaces, models for design
PREREQ: STAT371

STAT 616 DESIGN AND ANALYSIS OF EXPERIMENTS 3
Planning of experiments, designs for specific problems, fractional factorials, quasi-factori-
al experiments, balanced and unbalanced designs, confounding, introduction to linear
estimation.
PREREQ: STAT615

STAT 617 MULTIVARIATE METHODS 3
Multivariate analysis of variance and covariance, classification and discrimination,
canonical correlation, principal components and factor analysis
PREREQ: STAT371

STAT 618 SAMPLING TECHNIQUES 3
Simple random sampling, stratified random sampling, ratio estimates, regression esti-
mates, systematic sampling, cluster sampling and double sampling
PREREQ: STAT371

STAT 620 NONPARAMETRIC STATISTICS 3
Statistical procedures valid under unrestrictive assumptions; scales of measurement; effi-
ciency comparisons; signed rank procedures; two-sample rank tests; zeros, ties, and
other problems of discrete data; order statistics; k-sample procedures; and nonparamet-
rice measures of correlation
PREREQ: STAT601 and STAT371

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THEA 204  INTRODUCTION TO VOICE AND SPEECH  3
The use of voice and speech in performance includes exercises to develop relaxation, breath support, resonance, vocal strength, optimum pitch and articulatory precision, as well as studies in basic vocal anatomy. Studio format.  

THEA 205  INTRODUCTION TO MIME  3
Explores the theory and practice of theatrical performance without words. Theories of DelSarte, Laban, Decroux and others. Students engage in learning and performing short mime pieces for class.  

THEA 206  INTRODUCTION TO DANCE  3
Examines the function and impact of dance in the lives of individuals, societies, and cultures. Lecture and participatory format.  

THEA 207  TECHNICAL PRODUCTION PRACTICUM  1-4
Laboratory course for the production of scenery, properties, lighting and sound for public performances of the Professional Theatre Training Program Productions.  

THEA 209  COSTUME PRODUCTION PRACTICUM  1-4
Laboratory course for the production of costumes and costume crafts for public performances of the Professional Theatre Training Program Productions.  

THEA 220  MOVEMENT AND NONVERBAL COMMUNICATION  1 3
Emphasis on actor's physical expression of ideas, attitudes and feelings. Basic stage techniques, exploration of power and presence, and development of imagination and ability to use metaphor. Relationship of nonverbal communication to text in building a character.  

THEA 226  FUNDAMENTALS OF ACTING  3
Exploration of basic elements of the actor's art and craft so as to deepen and broaden the experience of viewing the theatre. May utilize theatre games, basic text work, improvisation and lecture/demonstrations.  

THEA 236  FUNDAMENTALS OF JAZZ DANCE  3
Jazz Dance as an art form and vehicle for individual and group expression. Emphasis on rhythm and style.  

RESTRICTIONS: Previous dance experience recommended.  

THEA 300  FUNDAMENTALS OF STAGECRAFT  3
Concentrates on traditional techniques used in the construction and rigging of scenery and properties for the stage. Demonstrates basic techniques and processes through a combination of classroom lecture and laboratory experience. 

PREREQ: THEA200  

COREQ: Theatre majors enroll in a minimum of one credit of THEA407.  

THEA 301  FUNDAMENTALS OF PROPERTIES CONSTRUCTION  3
Introduces basics of organization and management of properties for a theatrical production in addition to basic techniques of property construction. Demonstrates basic techniques and processes through a combination of classroom lecture and laboratory experience. 

PREREQ: THEA200  

COREQ: Theatre majors enroll in a minimum of one credit of THEA407.  

THEA 302  FUNDAMENTALS OF STAGE LIGHTING  3
Introduces basic techniques and processes used in the lighting of theatrical productions. Emphasis on the use and manipulation of lighting equipment. Demonstrates equipment and basic techniques and processes through a combination of classroom lecture and laboratory experience. 

PREREQ: THEA200  

COREQ: Theatre majors enroll in a minimum of one credit of THEA407.  

THEA 303  FUNDAMENTALS OF SCENE PAINTING  3
Introduces the tools, materials, and techniques of painting scenery for the stage. Demonstrates basic techniques and processes through a combination of classroom lecture and laboratory experience. 

PREREQ: THEA200  

COREQ: Theatre majors enroll in a minimum of one credit of THEA407.  

THEA 304  FUNDAMENTALS OF AUDIO FOR THE THEATRE  3
Introduces the physical phenomenon of sound and the techniques of controlling and manipulating it for theatrical productions. Demonstrates basic techniques and processes through a combination of classroom lecture and laboratory experience. 

PREREQ: THEA200  

COREQ: Theatre majors enroll in a minimum of one credit of THEA407.  

THEA 305  FUNDAMENTALS OF COSTUME CONSTRUCTION FOR THE STAGE  3
Introduces basic costume construction techniques through lectures, demonstrations, and laboratory experience. Culminates in the construction of a finished costume. 

PREREQ: THEA203  

COREQ: Theatre Majors enroll in a minimum of one credit of THEA407.  

THEA 306  FUNDAMENTALS OF PATTERNMAKING FOR THE STAGE  3
Teaches basic patternmaking techniques required in costuming through lectures, demonstrations, and laboratory experience. Includes how to recreate historical details used for period theatrical garments. 

PREREQ: THEA203  

COREQ: Theatre majors enroll in a minimum of 1 credit of THEA407.  

THEA 307  FUNDAMENTALS OF DRAPING FOR THE STAGE  3
Teaches basic draping skills and applies them to period costumes. Examines several historical periods commonly used in theatrical productions. Students create muslins or finished garments from at least four historical periods. 

PREREQ: THEA203  

COREQ: Theatre majors enroll in a minimum of 1 credit of THEA407.  

THEA 308  FUNDAMENTALS OF COSTUME CRAFTS  3
Provides basic experience in several craft-related areas commonly utilized in costuming, including makemaking, surface design, hatmaking, leather work and thermoplastics. 

PREREQ: THEA203  

COREQ: Theatre majors enroll in a minimum of 1 credit of THEA407.  

THEA 309  FUNDAMENTALS OF STAGE MANAGEMENT  3
Study of the techniques and procedures used in managing theatrical productions from conception through performance. 

PREREQ: THEA200  

COREQ: Theatre majors enroll in a minimum of 1 credit of THEA407.  

THEA 337  INTERMEDIATE JAZZ DANCE  3
Jazz dance as an art form and vehicle for individual and group expression. Introduces criteria for judgment and response. Develops performance potential. 

RESTRICTIONS: Previous dance experience or THEA226 recommended.  

THEA 341  THEATRE/DRAAMA: CLASSIC/MEDIEVAL  3
Survey of major historical and theoretical developments in theatre practice and dramaturgy during the period. Readings in primary and secondary historical sources, major critical and theoretical texts, and representative plays of the period. May be crosslisted with CMIL341.  

THEA 342  THEATRE/DRAAMA: RENAISSANCE TO 1700  3
Survey of major historical and theoretical developments in theatre practice and dramaturgy during the period. Readings in primary and secondary historical sources, major critical and theoretical texts, and representative plays of the period. May be crosslisted with CMIL342.  

THEA 343  THEATRE/DRAAMA: 1700 TO 1900  3
Survey of major historical and theoretical developments in theatre practice and dramaturgy during the period. Readings in primary and secondary historical sources, major critical and theoretical texts, and representative plays of the period. May be crosslisted with CMIL343.  

THEA 344  THEATRE/DRAAMA: 1900 TO PRESENT  3
Survey of major historical and theoretical developments in theatre practice and dramaturgy during the period. Readings in primary and secondary historical sources, major critical and theoretical texts, and representative plays of the period. May be crosslisted with CMIL344.  

THEA 345  HISTORY OF THEATRE: AMERICAN MUSICAL THEATRE  3
Musical-dramatic forms of the 18th, 19th and 20th centuries in the United States and their impact on the modern musical theatre. Complete works read and compared to a series of criteria that are found in successful modern shows. Comparison of older and current work. May be crosslisted with MUSC345.  

THEA 346  HISTORY OF THEATRE: THE AMERICAN THEATRE  3
Survey of major historical and theoretical developments in American theatre practice and dramaturgy from Revolutionary times to the present. Readings in primary and secondary historical sources, major critical and theoretical texts, as well as representative plays of the period.  

THEA 347  SPECIAL TOPICS IN THEATRE HISTORY  3
A series of changing topics in history and theory. Topics range from studies of significant movements in theatre to the study of theoretical issues and individual playwrights and genres.  

THEA 360  FUNDAMENTALS OF ORAL INTERPRETATION  3
Basic course in interpretation of text for the stage. Concentrates on texts from plays; explores prose and poetry. Emphasis on diction, meaning and presentation. Studio format.  

THEA 366  INDEPENDENT STUDY  1-6  

THEA 407  THEATRE PRACTICUM FOR MAJORS  1-4
Students assigned production responsibilities on departmental productions in the areas of lighting, sound, scenery, properties, costuming, stage management, painting and theatre management.  

RESTRICTIONS: Open to majors only. Requires permission of instructor.
THEA 410  FUNDAMENTALS OF DRAMATURGY  3
Topics covered include various methods of dramatic and entertainment analysis, scene analysis, development of dramaturgical plot, tableaux and practice. Survey of function and role of the dramaturg in contemporary theatre. Readings in primary and secondary material.

THEA 420  FUNDAMENTALS OF STAGE DIRECTING  3
Exploration of the director’s part in the creative process of theatre. Philosophy, techniques and problems of directing plays.
PREREQ: THEA 104

THEA 466  INDEPENDENT STUDY  1-6

THEA 476  SEMINAR IN PERFORMANCE  3
Seminar in performance theories and techniques. Topics will be announced.
PREREQ: THEA 226

THEA 490  SEMINAR IN THEATRE AND DRAMA  3
Seminar in theatre and drama. Topics will be announced.
RESTRICTIONS: Requires permission of instructor.

THEA 600  DISTINCTIONS OF PROFESSIONAL THEATRE PRACTICE  1
Inquiry into the nature of the theatre as an art form; techniques and issues of communication, organization, management, leadership team participation and creativity necessary to the pursuit and accomplishment of fulfilling careers in institutional and commercial theatres. Explores how the nature and purpose of the theatre as an art informs the day-to-day practices, values and behavior of the individual artist
RESTRICTIONS: Requires enrollment in Professional Theatre Training Program. May be repeated for up to six credit hours.

THEA 601  DYNAMICS  1
A vocal/physical warmup. Exercises designed to prepare student for the day’s work.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program. May be repeated for up to six credit hours.

THEA 602  VOICE DEVELOPMENT IA  1
Basic breath control and tone production to develop strength, control, flexibility and awareness.
RESTRICTIONS: Requires enrollment in the Professional Theatre Program/Acting or Directing.

THEA 603  VOICE DEVELOPMENT IB  1
Continuation of THEA 602.
PREREQ: THEA 602

THEA 604  VOICE DEVELOPMENT IIA  1
Continuation of THEA 603, with an emphasis on range extension and the development of greater variety in expressiveness.
PREREQ: THEA 603

THEA 605  VOICE DEVELOPMENT IIB  1
Continuation of THEA 604.
PREREQ: THEA 604

THEA 606  VOICE DEVELOPMENT IIAA  1
Individual instruction to identify habitual vocal patterns and to strengthen individual weaknesses in voice.
PREREQ: THEA 605,

THEA 607  VOICE DEVELOPMENT IIBB  1
Continuation of THEA 606.
PREREQ: THEA 606

THEA 608  STAGE MOVEMENT IA  1
Exercises and assignments to develop alignment, strength, flexibility, control, awareness, endurance, rhythmic sensitivity, balance and expressiveness.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Acting or Directing.

THEA 609  STAGE MOVEMENT IB  1
Continuation of THEA 608.
PREREQ: THEA 608.

THEA 610  STAGE MOVEMENT IIA  1
Continuation of THEA 609, with an emphasis on stage combat, tumbling, circus and other advanced movement techniques.
PREREQ: THEA 609.

THEA 611  STAGE MOVEMENT IIB  1
Continuation of THEA 610.
PREREQ: THEA 610.

THEA 612  STAGE MOVEMENT IIAA  1
Individual instruction to identify habitual movement patterns and to strengthen individual weaknesses in stage movement.
PREREQ: THEA 611.

THEA 613  STAGE MOVEMENT IIBB  1
Continuation of THEA 612.
PREREQ: THEA 612.

THEA 614  STAGE SPEECH IA  2
Ear training and phonetics. Corrective work on regional speech habits.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Acting or Directing.

THEA 615  STAGE SPEECH IB  2
Continuation of THEA 614. Beginning work on verse scansion.
PREREQ: THEA 614.

THEA 616  STAGE SPEECH IIA  1
Continuation of THEA 615 with an emphasis on phrasing and verse scansion.
PREREQ: THEA 615.

THEA 617  STAGE SPEECH IIB  1
Continuation of THEA 616.
PREREQ: THEA 616.

THEA 618  STAGE SPEECH IIIA  1
Stage dialects and advanced work in phrasing and verse scansion. Individual tutoring in problem areas.
PREREQ: THEA 617.

THEA 619  STAGE SPEECH IIIB  1
Continuation of THEA 618.
PREREQ: THEA 618.

THEA 620  REHEARSAL AND PERFORMANCE/ACTING  1-6
Practical instruction and assignments in the preparation, rehearsal and performance of theatrical productions.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Acting. May be repeated for up to 24 credit hours.

THEA 621  STAGE DIRECTING IA  1
Fundamental techniques of planning and staging of production.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Acting.

THEA 622  STAGE DIRECTING IB  1
Continuation of THEA 621.
PREREQ: THEA 621.

THEA 623  STAGE DIRECTING IIA  1
Continuation of THEA 622, with an emphasis on techniques of script preparation and actor coaching.
PREREQ: THEA 622.

THEA 624  STAGE DIRECTING IIB  1
Continuation of THEA 623.
PREREQ: THEA 623.

THEA 625  STAGE DIRECTING IIIA  1
Continuation of THEA 624, with an emphasis on text analysis and actor coaching and an examination of styles and genres.
PREREQ: THEA 624.

THEA 626  STAGE DIRECTING IIIB  1
Continuation of THEA 625.
PREREQ: THEA 625.

THEA 627  STAGE MANAGEMENT FOR DIRECTORS  1
Techniques and methods of stage management from the directorial point of view.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Directing. May be repeated for up to two credit hours.

THEA 628  SET DESIGN FOR DIRECTORS  1
Principles of scenic design from a directorial point of view.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Directing.

THEA 629  COSTUME DESIGN FOR DIRECTORS  1
Principles of costume design from a directorial point of view.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Directing.

THEA 630  PRODUCTION BUDGETING  1
Principles of assessing production expenses, time and personnel requirements for the professional theatre.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Directing.

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THEA 631 REHEARSAL AND PERFORMANCE/DIRECTING 1-3
Practical training in stage direction through serving as assistant director on faculty-direct
ed productions.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Direct-
ing. May be repeated for up to ten credit hours

THEA 633 STAGE MANAGEMENT ORGANIZATIONAL AND MANAGERIAL
TECHNIQUES IA 1-2
Development of organizational structuring and communication techniques for the admini-
stration of stage managerial projects.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Stage
Management.

THEA 634 STAGE MANAGEMENT ORGANIZATIONAL AND MANAGERIAL
TECHNIQUES IB 1-2
Further development of organizational structuring and communication techniques for the
administration of stage managerial projects.
PREREQ: THEA633.

THEA 635 STAGE MANAGEMENT ORGANIZATIONAL AND MANAGERIAL
TECHNIQUES IIA 1-2
Development of organizational structuring and communication techniques for the admin-
istration of stage managerial projects.
PREREQ: THEA634.

THEA 636 STAGE MANAGEMENT ORGANIZATIONAL AND MANAGERIAL
TECHNIQUES IIB 1-2
Further development of organizational structuring and communication techniques for the
administration of stage managerial projects.
PREREQ: THEA635.

THEA 637 STAGE MANAGEMENT ORGANIZATIONAL AND MANAGERIAL
TECHNIQUES IIIA 1-2
Development of organizational structuring and communication techniques for the admin-
istration of stage managerial projects.
PREREQ: THEA636.

THEA 638 STAGE MANAGEMENT ORGANIZATIONAL AND MANAGERIAL
TECHNIQUES IIIB 1-2
Further development of organizational structuring and communication techniques for the
administration of stage managerial projects.
PREREQ: THEA637.

THEA 639 STAGE MANAGEMENT PRODUCTION SKILLS IA 1-2
Development of stage managerial skills for organizing, preparing and fulfilling theatrical
productions from inception through rehearsals and performance.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Stage
Management.

THEA 640 STAGE MANAGEMENT PRODUCTION SKILLS IB 1-2
Further development of stage managerial skills for organizing, preparing and fulfilling theatrical
productions from inception through rehearsals and performance.
PREREQ: THEA639.

THEA 641 STAGE MANAGEMENT PRODUCTION SKILLS IIA 1-2
Development of stage managerial skills for organizing, preparing and fulfilling theatrical
productions from inception through rehearsals and performance.
PREREQ: THEA640.

THEA 642 STAGE MANAGEMENT PRODUCTION SKILLS IIB 1-2
Further development of stage managerial skills for organizing, preparing and fulfilling theatrical
productions from inception through rehearsals and performance.
PREREQ: THEA641.

THEA 643 STAGE MANAGEMENT PRODUCTION SKILLS IIIA 1-2
Development of stage managerial skills for organizing, preparing and fulfilling theatrical
productions from inception through rehearsals and performance.
PREREQ: THEA642.

THEA 644 STAGE MANAGEMENT PRODUCTION SKILLS IIIB 1-2
Further development of stage managerial skills for organizing, preparing and fulfilling theatrical
productions from inception through rehearsals and performance.
PREREQ: THEA643.

THEA 645 REHEARSAL AND PERFORMANCE/STAGE MANAGEMENT 1-5
Practical instruction and assignments in the preparation, rehearsal and performance of
theatrical productions.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Stage
Management. May be repeated for up to 9 credits.

THEA 647 STAGE MAKEUP 1
Study and practical work in all aspects of stage makeup. Emphasis on the use of materi-
als, the effects of light and color and character analysis.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Cos-
tume Production.

THEA 648 COSTUME CONSTRUCTION 1
Introductory course exploring the mechanics and technology of the art of costuming. Sur-
veys all aspects of the costume’s craft including practical work in the costume shop.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Cos-
tume Construction.

THEA 649 COSTUME DESIGN 1
An approach to the designing of costumes for plays through an appreciation and under-
standing of the basic principles of design. Covers in-depth theatrical rendering tech-
nique, color theory and the elements of design.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Cos-
tume Production.

THEA 650 HISTORICAL COSTUME I 1
Examines theatrical costume as well as concurrent fashion trends from primitive ritual to
Restoration theatrical works in the 17th century.

THEA 651 HISTORICAL COSTUME II 1
A study of costume and theatrical costume history from 1670 to the present. Emphasis on
sociological changes in patterns of fashion behavior and recreating that attitude for
stage.

THEA 652 TAILORING I 1
Construction of stage costumes: intermediate and advanced dressmaking and tailoring
techniques, textiles survey, cutting, fitting and alterations.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Cos-
tume Production.

THEA 653 TAILORING II 1
Construction of stage costumes: advanced tailoring techniques and practical application
of skills in costume shop.
PREREQ: THEA652.

THEA 654 PATTERNMAKING I 1
Basic patternmaking, includes drafting of basic slopers, sleeves, collars, pants, etc.
Emphasis on theatrical costumes.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Cos-
tume Production.

THEA 655 PATTERNMAKING II 1
Advanced pattern drafting of period patterns, coats, suits and menswear for the theatre.
PREREQ: THEA654.

THEA 656 PATTERNMAKING III 1
Continuation of THEA655. Emphasis on Renaissance and Restoration costumes.
PREREQ: THEA655.

THEA 657 PATTERNMAKING IV 1
Continuation of THEA656. Emphasis on 19th-century men’s and women’s costumes.
PREREQ: THEA656.

THEA 658 COSTUME CRAFTS I 1
Study and practical work in dyeing and painting for costumes.
PREREQ: THEA654.

THEA 659 COSTUME CRAFTS II 1
Advanced projects in costume accessory construction. Emphasis on millinery, hat block-
ing, wigmaking and new techniques in related areas.
PREREQ: THEA658.

THEA 660 COSTUME CRAFTS III 1
Study and practical work in three-dimensional construction techniques to include
maskmaking, armor, molding and leatherwork and sculptural foam animals
PREREQ: THEA659.

THEA 661 DRAPING I 1
Advanced study in construction of stage costumes with an emphasis on draping.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Cos-
tume Production.

THEA 662 DRAPING II 1
Emphasis on advanced draping problems with detailed period and contemporary
costumes.
PREREQ: THEA661.

THEA 663 DRAPING III 1
Continuation of THEA662 with emphasis on Renaissance and Restoration costumes.
PREREQ: THEA662.

THEA 664 INTERNSHIP IN PROFESSIONAL THEATRE 1-9
Engagement with professional theatre in individual discipline area
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program. May
be repeated for up to 18 credit hours.
THEA 665 THEATRE LITERACY 2
Discussion, research, and practice in theatre terminology, literature and history.
RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program. May be repeated for up to 12 credit hours.

THEA 668 RESEARCH 1-6

THEA 669 DRAPING IV 1
Continuation of THEA 663 with emphasis on 18th- and 19th-century costume. PREREQ: THEA 663.

THEA 670 COSTUME SHOP MANAGEMENT 1
Problems and techniques of costume shop management, personnel organization, equipment, inventory and supply control, and financial organization and management. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Costume Production.

THEA 671 APPLIED COSTUME SHOP MANAGEMENT 1
Practical application of skills learned in THEA 670. PREREQ: THEA 670.

THEA 672 PRODUCTION PREPARATION AND PERFORMANCE 1-4
Practical instruction and assignments in the preparation, construction and mounting of costumes and costume accessories for theatrical performances. RESTRICTIONS: May be repeated for up to 22 credits.

THEA 674 SCENERY PRODUCTION 1
Materials, tools, hardware and construction methods used for scenery construction. Emphasis on traditional scenic construction with wood as the primary material. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Technical Production.

THEA 675 PROPERTIES PRODUCTION 1
Concentrates on property production techniques with emphasis on properties management, acquisition, and health and safety. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Technical Production.

THEA 676 SCENERY: METALWORKING 1
Materials, tools, and methods of metal for scenery construction. PREREQ: THEA 674.

THEA 677 PROPERTIES: UPHOLSTERY AND DRAPERY 1
Tools, materials, and methods for upholstery and drapery. PREREQ: THEA 675.

THEA 678 PROPERTIES: CASTING AND MOLD-MAKING 1
Tools, materials, and methods of sculpting, casting, and mold-making techniques. PREREQ: THEA 675.

THEA 679 SCENERY: STAGE RIGGING 1

THEA 680 LIGHTING PRODUCTION 1

THEA 681 AUDIO PRODUCTION 1
Sound theory and practice as applied to contemporary theatre production. Emphasis placed on utilizing current systems, equipment and technology for audio production. RESTRICTIONS: Requires enrollment in Professional Theatre Training Program/Technical Product.

THEA 682 LIGHTING DESIGN 1
Essential skills and procedures for creating, documenting and realizing a lighting design for a theatrical production. PREREQ: THEA 680.

THEA 683 ELECTRICS AND AUDIO PRODUCTION III B 1
Continuation of THEA 682, with emphasis on electrical distribution. Systems and sound reinforcement techniques. PREREQ: THEA 682.

THEA 684 ELECTRICS AND AUDIO PRODUCTION III A 1
Continuation of THEA 683, with emphasis on maintenance and repair of electrical and audio equipment. PREREQ: THEA 683.

THEA 685 ELECTRICS AND AUDIO PRODUCTION III B 1
Continuation of THEA 684, with emphasis on advanced mixing and editing techniques and advanced electrical control techniques. PREREQ: THEA 684.

THEA 686 INFORMATION TECHNOLOGIES FOR THEATRE 1
Application of computer software to theatrical production practice. Emphasis is placed on CAD (drafting) techniques for theatre production. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Technical Production.

THEA 687 SCENERY PAINTING 1

THEA 688 CAD AND SCENERY CONSTRUCTION 1
Continued work on CAD (drafting) with emphasis on construction drawings for scenery construction. Further study of standard and specialized scenery construction methods. PREREQ: THEA 686.

THEA 689 ADVANCED SCENERY PAINTING 1
Continuation of THEA 687, with emphasis on wood and marble techniques, columns, and other three-dimensional forms, and stenciling techniques for painting wallpaper. PREREQ: THEA 687.

THEA 690 ADVANCED CAD 1
Techniques for solving advanced problems in analytical geometry with 2D and 3D CAD. PREREQ: THEA 688.

THEA 691 PAINTING, GRAPHICS AND DESIGN FOR PRODUCTION III B 1
Continuation of THEA 690, with emphasis on advanced work in scene painting and drafting. PREREQ: THEA 690.

THEA 692 PRODUCTION AND PERFORMANCE/TECHNICAL 1-4
Practical instruction and assignments in the technical preparation and production of Professional Theatre Training Program public performances. Assignments include (but are not limited to): Master Carpenter, Master Electrician, Property Master, Audio Engineer, Scenic Artist, and Technical Director. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program/Technical Production. May be repeated for up to 20 credit hours.

THEA 693 PRODUCTION COORDINATION 1
Development of management and communication techniques for effective interaction among stage management, costume production and technical production areas of theatre. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program. May be repeated for up to 6 credit hours.

THEA 694 SPECIAL TOPICS IN THEATRE PRODUCTION 1-3
Multiple units on advanced topics in theatre production and management. Students select topics from a list of 5-6 available options offered by PTTP production faculty. RESTRICTIONS: Requires enrollment in the Professional Theatre Training Program. May be repeated for up to 9 credits.

URBAN AFFAIRS AND PUBLIC POLICY

UAPP 605 TOPICS IN URBAN AFFAIRS 3
Focuses on selected topics in urban affairs such as urban politics and government, urban education and neighborhood analysis. RESTRICTIONS: May be repeated for up to nine credits when topics vary.

UAPP 606 LOCAL ECONOMIC DEVELOPMENT: POLICY AND PRACTICE 3
Examines theory and contemporary practice for promoting the economic development of local communities. Reviews alternative ways of understanding the dynamics of local economic development and devising strategies that will benefit community residents.

UAPP 607 SEMINAR IN COMMUNITY DEVELOPMENT AND NONPROFIT LEADERSHIP 3
Examines the complex ways in which the concepts of community analysis and development are used and understood. Students connect the concepts to issues, problems or policy alternatives affecting local communities by participating in applied projects. May be cross-listed with IFST 607.

UAPP 608 POVERTY, NEIGHBORHOODS AND COMMUNITY DEVELOPMENT 3
Examines social science literature through which multidisciplinary analysts have described and explained poverty, analyzed neighborhoods, and categorized community development efforts. Focusing on the United States, particular attention is paid to analyses from 1960 to the present. May be cross-listed with IFST 608.
UAPP 610  URBAN LAND USE PLANNING AND ADMINISTRATION  3
Interaction of political, economic and social forces in the planning and land use control process. Emphasis is on planning agency administration and current policies impacting the planning process, including recently enacted environmental and community development legislation. Concern for the role of the planner, the planning agency and the planning function as it relates to economic and community development.

UAPP 612  URBAN HOUSING POLICY AND ADMINISTRATION  3
Problems associated with providing adequate and affordable housing in the U.S. The structure and dynamics of the housing market; demand and supply factors; market failure; financing methods; and federal, state and local public policy affecting housing, including taxation, regulation, subsidy programs, and land use controls.

UAPP 613  PLANNING THEORY AND URBAN POLICY  3
Provides an overview of the development and current conceptual, normative and methodological issues in planning theory as applied to urban regions.

UAPP 614  THE AMERICAN SUBURB  3
An examination of the historical and geographical origins of the American suburb and its role in metropolitan development and larger society. Includes the evolution of the streetcar and automobile suburbs with special emphasis on the post World War II suburban boom and contemporary post-suburban trends. May be crosslisted with GEOG614 and/or HIST614.

UAPP 615  URBAN, REGIONAL AND ENVIRONMENTAL PLANNING  3
Provides an introduction to urban planning. Focuses mainly on U.S., but some comparisons made with Britain and Canada. Issues covered include zoning, urban growth management, land policies, regional policies and urban policy. May be crosslisted with GEOG615.

UAPP 616  URBAN COMMUNITY ORGANIZATION SEMINAR  3
Studies the varied community organization concepts, methods and models, and analyzes the organizational structure and service delivery systems of selected social agencies that sponsor community organization and social action activities.

UAPP 618  HUMAN SERVICE SYSTEMS: POLICY, PRACTICES, ADMINISTRATION  3
Centers on operational practices and administration of human service systems. Includes an analysis of human service systems concepts and policies, delivery practices and administration. Human service systems dimensions reviewed in relation to the rising influence of organized human service professional (practitioner) groups and organized human service consumer groups.

UAPP 622  RESOURCES, DEVELOPMENT AND THE ENVIRONMENT  3
See GEOG622 for course description.

UAPP 624  SEMINAR IN CRIMINAL JUSTICE  3
Discussion and evaluation of institutional components of criminal justice systems. Topics include police, judicial and correctional systems.

UAPP 625  ENERGY POLICY AND ADMINISTRATION  3
See POSC625 for course description.

UAPP 626  CONSERVATION AND RENEWABLE ENERGY POLICY  3
Covers current policy issues for energy conservation, energy efficiency, and renewable energy sources. Some prior background in energy policy is assumed, and the course will go into substantial depth. Topics will include environmental impacts, utility programs, and international comparisons. May be crosslisted with MAST622 and/or POSC626. PREREQ: UAPP625 and POSC624.

UAPP 627  COMPARATIVE ENVIRONMENTAL POLITICS  3
Examines the effects of institutional and systemic factors in the formulation and implementation of environmental policies in several developed and developing countries. Considers the impact of modes of political participation, level of development, and type of political economy on policy. May be crosslisted with MAST628 and/or POSC628.

UAPP 628  ISSUES IN LAND USE AND ENVIRONMENTAL PLANNING  3
See GEOG628 for course description.

UAPP 629  SEMINAR IN HISTORIC PRESERVATION  3
Survey of historic preservation and management of cultural resources examining cultural contexts and public policy. Covers techniques of preservation, legal and legislative basis of preservation programs, and particular attention to National Register of Historic Places. May be crosslisted with ARTH628, HIST652 and/or MAST629.

UAPP 630  METHODS IN HISTORIC PRESERVATION  3
Upper-level field research seminar concentrating on developing graphic, photographic and narrative skills for architectural documentation. Involves classroom and field sessions. May be crosslisted with ARTH634 and/or HIST634.

UAPP 632  MAKING THE AMERICAN CITY  3
Advanced research and reading seminar on the material organization of early American cities. Examination of historical and cultural issues related to housing, consumerism, gender, ethnicity, craft, poverty and wealth as a means to interpreting the city as artifact and symbolic setting. Includes field trips to cities in the region. Students will work with primary sources including archaeological materials, architectural and documentary evidence. May be crosslisted with ARTH632 and/or HIST632.

UAPP 634  HOUSING FINANCE AND DEVELOPMENT  3
Fundamentals of real estate and housing finance. Various methods available to finance the development of real estate. Financial instruments and institutions involved in each phase. Relevant tax laws and likely tax consequences. Development of public policy as it affects the availability of housing credit. The function, operation and regulation of financial and related institutions, including FHA, FNMA, GNMA, FHBB and FHLMC.

UAPP 635  THE EVOLUTION OF THE AMERICAN URBAN LANDSCAPE  3
Reading and research seminar on the evolution of the American urban landscape from approximately 1850 to the present. Examination of historical, cultural and geographical issues and processes related to industrialism and capitalism, technology, gender and ethnicity, housing, poverty and wealth as a means of understanding the formation of the historic American urban landscape. Includes field trips to cities in the region. May be crosslisted with GEOG635 and/or HIST635.

UAPP 636  RESEARCH TOPICS IN HISTORIC PRESERVATION  3
Seminar that addresses a specific research issue within historic preservation including hypothesis construction, design of research methodology and evaluation of results. Emphasis on the use of primary sources and application of data-base techniques. May be crosslisted with ARTH622, GEOG636 and/or HIST636.

UAPP 637  PERSONNEL SELECTION AND EVALUATION  3
Review of the varied legal issues, federal agency guidelines, court decisions and research psychometric principles that influence the practice of employee selection and evaluation.

UAPP 638  WORLD CITIES IN COMPARATIVE PERSPECTIVE  3
See GEOG638 for course description.

UAPP 640  INTERNATIONAL AND DEVELOPMENT ADMINISTRATION  3
See POSC640 for course description.

UAPP 645  PUBLIC SECTOR LABOR RELATIONS  3
An overview of employer-employee relations in state and local governments. Emphasis on the economic and political environment, institutional responses to collective bargaining, and economic and political outcomes of the bargaining process. Some emphasis on development of skills in grievance handling and arbitration.

UAPP 647  PHILOSOPHY OF TECHNOLOGY  3
See PHIL647 for course description.

UAPP 648  ENVIRONMENTAL ETHICS  3
See PHIL648 for course description.

UAPP 654  VERNACULAR ARCHITECTURE  3
See HIST654 for course description.

UAPP 655  SOCIAL ENVIRONMENT AND HEALTH  3
Examines the relation between socioeconomic structure and health as a descriptive and conceptual framework for health policy analyses at national and local levels. Views relations between health levels and socioeconomic structure, and changes in socioeconomic structure from spatial and historical perspectives. Dimensions of socioeconomic structure include income, education, occupation, industry, ethnicity and employment.

UAPP 659  TOPICS IN PUBLIC ADMINISTRATION  3
Focuses on micro and macro Public Administration issues, i.e., privatization, health care cost containment, flex benefits packages, ethics, organizational productivity, concession and productivity bargaining. May be crosslisted with POSC659.

UAPP 660  SEMINAR IN URBAN MANAGEMENT  3
Provides a theoretical and conceptual orientation to urban management, perspectives on the development of urban management as a profession, a description of the intergovernmental, sociopolitical and economic environment of urban management, and analyses of current issues in the area.

UAPP 662  MUNICIPAL MANAGEMENT  3
Surveys the major operational functions of local government with emphasis on the practical elements and problems in the management of these functions. Functions include solid waste disposal, economic development, planning and land use control, water supply, police and emergency services; and cultural, social and recreational services. Emphasis on innovative approaches to the provision of services.

UAPP 664  CASE STUDIES IN STATE AND LOCAL MANAGEMENT  3
Uses analyses of cases in state and local decision making to enable students to improve their communication, decision-making and management skills. Cases deal with a broad range of subject areas (e.g., health and recreation) and problems (e.g., facility location and personnel).

UAPP 678  ADMIRALTY AND MARITIME LAW  3
See MAST678 for course description.

UAPP 681  METROPOLITAN INFRASTRUCTURE AND TRANSPORTATION  3
Movement is essential for metropolitan area performance. Roads and water systems are infrastructure components that impact on where houses, stores, and jobs are located; which in turn links into movement, pollution and congestion. This course treats infrastructure decision making using approaches from public economics. May be crosslisted with POSC681. PREREQ: URAF834 or microeconomics.
UAPP 683 REGIONAL POLICY ANALYSIS 3
Why do some regions grow and change? Course presents theories of regional development, methods of international analysis, as well as internal-regional topics such as land use, migration, city-suburban shifts, and neighborhoods. Various kinds of regional policies are analyzed. May be cross-listed with POSC803.
PREREQ: UAPP834 or microeconomics

UAPP 685 PERSONNEL AND HUMAN RESOURCE ISSUES: CURRENT TOPICS 3
Analysis of selected policies, practices, and issues currently important in the field of public personnel/human resources. Topics vary depending on instructor (illustrations: EEO developments, "Glass Ceiling" issues, ADA, benefits/cost containment, labor negotiation trends, the changing workforce and workplace) Seminar with individually-tailored projects. May be cross-listed with POSC865.
PREREQ: UAPP837

RESTRICTIONS: Based on prior coursework and professional experience, may be waived with instructor approval.

UAPP 686 STATE AND LOCAL GOVERNMENT: CONCEPT AND ISSUES 3
Explores the state and local government context in which public managers work. Examines the organizational, administrative, and economic forces shaping state and local public action, as well as the political decision making apparatus used by subnational governments. Assesses their contemporary role in the federal system. May be cross-listed with POSC868.

UAPP 687 STATE GOVERNMENT POLICY AND MANAGEMENT 3
Focuses on roles and functions of state government in the United States. Topics to be covered will include legislative policy making and operations, executive branch organization and functions, the structure and role of state courts, the role of the governor and the role of the states in intergovernmental policy making. State government in the Middle Atlantic region will receive special attention. May be cross-listed with POSC867.

UAPP 688 TOPICS IN STATE AND LOCAL MANAGEMENT 3
Focuses on selected topics in state and local management and policymaking. May include in-depth exploration of management processes/instruments (e.g., budgeting) and/or contemporary policy issues (e.g., educational reform, environmental crises) within state and local government with which public managers must contend. May be cross-listed with POSC868.

UAPP 800 RESEARCH DESIGN AND METHODOLOGIES 3
Provides skills and examines issues in research design, data acquisition and data analysis in urban affairs.

UAPP 801 PROCESSES OF SOCIAL INQUIRY 3
Explores the philosophical underpinnings of social inquiry and the issues surrounding the development and use of social research for urban and policy analysis.

UAPP 803 SEMINAR: PUBLIC ADMINISTRATION 3
See POSC803 for course description.

UAPP 804 PROGRAM EVALUATION 3
Survey of theory and methods for the evaluation of human service programs. When possible, students participate in actual evaluative research.

UAPP 806 SURVEY RESEARCH 3
Methods and procedures for the design, administration and analysis of sample surveys.

UAPP 810 POLITICAL ECONOMY OF THE ENVIRONMENT 3
Examines a wide range of theories on the social, political and economic meanings and values attributed to nature. Particular attention is paid to differences in perspective on the relation of human beings to the environment. Protection, wise use and preservation policy goals are critically evaluated and issues of environmental justice are considered. May be cross-listed with NAT814 and/or POSC814.

UAPP 813 DATA BASE AND DECISION SUPPORT SYSTEMS 3
Focuses on the interface between the decision maker and the information system that supports those individuals. Topics include system design, methods of retrieval, graphics and related hardware and software issues.

UAPP 814 COMPUTER IN PUBLIC MANAGEMENT 3
Provides a comprehensive overview of data processing and systems development as seen from the viewpoint of the manager. Presents concepts in hardware, software and data communications followed by sessions on the production of software, acquisition of software and hardware, data base management systems, electronic mail and decision support systems.

UAPP 815 PUBLIC MANAGEMENT STATISTICS 3
Emphasis on the practical knowledge of statistical techniques and their use in the management of data in public management research. Discussion and appraisal of various statistical tools from a theoretical standpoint, and application of statistical methods and procedures in a laboratory situation for the collection, organization and analysis of statistical information in public management research. May be cross-listed with POSC815.

UAPP 816 ADVANCED SOCIAL STATISTICS 3
See POSC816 for course description.

UAPP 817 PUBLIC INVESTMENT POLICY 3
Focuses on the means by which government activities can be financed. Topics are tax vs. debt financing; use of appropriate instruments and policies, e.g., types of bonds; and forces that influence implementation, e.g., the design of instruments, fiscal capacity, rating system and market behavior. May be cross-listed with POSC817.

UAPP 818 ENVIRONMENTAL POLICY AND ADMINISTRATION 3
See POSC818 for course description.

UAPP 819 MANAGEMENT DECISION MAKING 3
Focuses on analytical decision making within public organizations. Examines processes by which decisions can be made and evaluated. Emphasis on conceptual factors that provide a guide to decisions and evaluations of decision methodologies, e.g., systems analysis, cost-benefit analysis, PERT/critical path method, decision trees and time series. May be cross-listed with POSC819.
PREREQ: Lotus 123

UAPP 821 PROSEMINAR: TECHNOLOGY, ENVIRONMENT AND SOCIETY 3
Examines institutional, political and economic factors influencing the role of technology in urban society. Discusses policies currently and indirectly related to technology development, diffusion and control. Presents a wide range of theoretical and policy perspectives, including sociology, political science, economics, urban planning, environmental studies, and history and philosophy of technology. May be cross-listed with POSC821.

UAPP 822 PROSEMINAR IN PLANNING AND GOVERNANCE 3
Deals with policy and research issues concerning the making, administering and outcomes of public policies affecting urban populations and with how urban planning and governance processes are influenced by the interaction of the public, private and third sectors at the local, regional, national and international scales.

UAPP 823 PROSEMINAR IN SOCIAL POLICY ANALYSIS AND EVALUATION 3
Introduces primary theoretical frameworks, policy issues and research concerns of this field. Topics include the nature of social policy, means to evaluate social policy, the role of research in the determination of social policy and current research issues in social policy analysis and evaluation.

UAPP 825 COMPARATIVE PUBLIC ADMINISTRATION 3
See POSC825 for course description.

UAPP 826 MULTIVARIATE STATISTICAL ANALYSIS 3
Provides an indepth understanding of advanced statistical methods with an applied focus on estimation, inference, and prediction of models. Major topics are: multiple regression, functional forms, types of data, regression diagnostics (collinearity, serial correlation, heteroscedasticity, and simultaneity), different estimators, comparison of models, dummy dependent variables, dynamic models and lags, and multi-equation models.
PREREQ: UAPP815
RESTRICTIONS: A statistics course that introduces regression analysis.

UAPP 827 PROGRAM AND PROJECT ANALYSIS 3
Examines how public sector decision makers evaluate feasibility of government programs and projects. Governmental and societal costs incurred and benefits that would result if public programs or capital projects were undertaken in urban areas. Considers how issues of time, program design, urban activities and structures, and potential effectiveness should be handled. Considers the equity of government programs and their potential impact in the future.

UAPP 828 URBAN ANALYSIS AND POLICY ALTERNATIVES 3
Explores a variety of theories of the city and their ability to explain the contemporary conditions and problems of cities. Critically examines the role of analysis in the formation of urban policy.

UAPP 829 ADVANCED PUBLIC FINANCE 3
Advanced course in theory and application of financing, spending, and regulatory policy instruments of state and local governments. Topics include efficiency, equity and impacts of different types of taxation, user charges, expenditure approaches (transfers/subsidies), and regulation alternatives. May be cross-listed with POSC829.

UAPP 833 PUBLIC FINANCE AND FISCAL MANAGEMENT 3
The theories and practice of public finance and public sector economics as they relate to the financial management of state and local governments in the context of a federal system. General topics include revenues, expenditures, intergovernmental fiscal relationships and selected techniques of public resource management such as budgeting and debt management. May be cross-listed with POSC839.
PREREQ: UAPP834.

UAPP 834 PUBLIC ECONOMICS 3
Develops the framework and concepts of microeconomics for the purpose of applying them to the analysis of urban and public sector policies and issues from such topical areas as education, transportation, housing, environment, poverty, energy, public health, community development, law enforcement, recreation and regulation.

UAPP 835 ORGANIZATION THEORY AND ADMINISTRATION 3
See POSC835 for course description.

UNIVERSITY OF DELAWARE 1997-98 CATALOG / PAGE 349
UAPP 837 Public Sector Human Resources Management 3
Personnel management topics of importance to the manager in the public agency setting; public labor relations, grievance and dispute settlement, merit systems, pay and classification systems, affirmative action, modern selection techniques, and the role of the personnel specialist in designing and implementing employee and organizational development programs. May be cross-listed with POSC 837.

UAPP 838 Public Policy Analysis 3
See POSC 838 for course description.

UAPP 840 Introduction to the Nonprofit Sector 3
Traces history and development of the nonprofit sector in the United States, with a focus on social, economic, political and legal factors. Voluntarism and philanthropy are emphasized. The role of nonprofit organizations in furthering the goals of community development is explored.

UAPP 841 Issues in the Management and Governance of Nonprofit Organizations 3
Provides an introduction to the leadership and management issues facing nonprofit executives. Topics include board relationships and voluntary leadership, financial management and budgeting, human resource management (organizational change, managing diversity and career development), organizational culture and stakeholder relationships.

UAPP 842 Strategic Planning for Nonprofit Organizations 3
Provides students with the skills and knowledge required for carrying out strategic planning in private nonprofit and public agencies. Focuses on the organizational environments in which planning takes place, examines the theories which underlie planning in general and strategic planning in particular and presents a usable model for strategic planning.

UAPP 843 Global Governance: Theory and Cases 3
See POSC 843 for course description.

UAPP 845 Introduction to Urban Affairs and Public Policy 3
Introduction to the study of urban policy and public policy as an area of inquiry.

UAPP 850 Internship Seminar 1
Assists student in making decisions about specialization and internship objectives related to the Masters in Public Administration program and identifies related skills. Develops short- and long-term career skills.

UAPP 863 Doctoral Research Paper 3
Requirement of the doctoral program. The doctoral research paper is prepared prior to the dissertation proposal.

Restrictions: PhD students only

UAPP 864 Internship Fieldwork 2
Three-month (or equivalent) fieldwork completed along with seminars, performance evaluation and career reflection paper.

UAPP 865 Research 1-6

UAPP 869 Master's Thesis 1-6

UAPP 870 Readings 1-6

UAPP 872 Analytical Paper 3-6
A requirement of the M.A. and M.P.A. program. The paper demonstrates the student's ability to analyze a particular policy or administrative problem and develop an appropriate response.

UAPP 964 Pre-Candidacy Study 3-12 PF
Research and readings in preparation of dissertation topic and/or qualifying examinations for doctoral students before admission to candidacy but after completion of all required course work.

Restrictions: Not open to students who have been admitted to candidacy

UAPP 969 Doctoral Dissertation 1-12 PF

UNIVERSITY COURSE

UNIV 120 University Forum 1 PF
Course taught in conjunction with the University Forum Lecture Series. Students attend all Forum lectures (approximately ten), read selected texts and/or journal essays designed to supplement the lecture series, and take a final exam.

UNIV 320 Contemporary Issues for Resident Assistants 1
Introduces new Resident Assistants to issues affecting college students. All topics covered in the course focus on the needs of the new resident assistant in the Office of Housing and Residence Life.

Restrictions: Must be a resident assistant

UNIV 330 Del Central Year Abroad 0 NR

UNIV 350 National Student Exchange Program 0 NR
UNIV 351 Semester in Copenhagen 0 NR
UNIV 354 Semester in London 0 NR
UNIV 368 Honors Workshop: Advanced Topics 1
Multidisciplinary seminar with emphasis on discussion of state-of-the-art research topics by Accounting/Business/Economics faculty. New topic each semester. Includes assessment of the research approach, substantive findings, related research and possible extensions.

Restrictions: Requires GPA of 3.0 or higher and Junior or Senior status

UNIV 369 Honors: Undergraduate Research Sustaining 0 PF
Research apprenticeship with faculty mentor.

Restrictions: Limited to those appointed as Undergraduate Research Scholars in the Undergraduate Research Program. Must have approval of the Coordinator of Undergraduate Research, University Honors Program.

UNIV 401 Senior Thesis 2-4
Senior thesis for students working toward a degree with distinction.

Restrictions: Total credit for UNIV 401 and UNIV 402 not to exceed six

UNIV 402 Senior Thesis 2-4
Continuation of UNIV 401.

Restrictions: Total credit for UNIV 401 and UNIV 402 not to exceed six

UNIV 490 Honors Tutorial: Humanities 3
Designated faculty direct the studies of up to three students per semester. Readings of classical works in the humanities described Group as well as individual discussions.

Restrictions: Requires 3.4 GPA, Sophomore standing or above, and permission of the Honors Program

UNIV 491 Honors Tutorial: Natural/Science 3
Designated faculty direct the studies of up to three students per semester. Reading of classical works in the social and natural sciences described. Group as well as independent discussions.

Restrictions: Requires 3.4 GPA, Sophomore standing or above and permission of the Honors Program

UNIV 495 Honors Seminar 3
Topics vary; usually interdisciplinary

Restrictions: Requires 3.0 GPA, Junior status or above, and permission of the Honors Program. May be repeated for credit with a different topic and instructor

UNIV 500 Leave of Absence 0 NR

UNIV 899 Master's Sustaining 0 NR

UNIV 999 Ph.D. Sustaining 0 NR

WOMEN'S STUDIES

WOMS 201 Introduction to Women's Studies 3
Study of the causes and conditions determining women's status in society, as evidenced in institutional structures and personal relations between men and women. Taught from multidisciplinary perspectives.

WOMS 202 Introduction to International Women's Studies 3
Examines how public policies and traditional customs affect women's lives around the world. Focuses on the effects of political and economic status, social norms and institutional structures on women's conditions in family life, education and employment.

WOMS 203 Contemporary Moral Problems 3
See PHIL 202 for course description.

WOMS 204 Gender and Knowledge 3
Women have been largely absent from the historical record and from the traditional liberal arts curriculum. Introduces, via guest lectures, the new scholarship on women in disciplines from English literature to biology to the social sciences.

WOMS 205 Women in the Arts and Humanities 3
Interdisciplinary survey of women's contributions to the arts and humanities, also including literary/artistic images of women, contributions of minority and non-Western women, and study of the relationship between women's social-economic roles and cultural expressions.

WOMS 206 Women and Work 3
Covers a variety of topics including women in traditional and non-traditional occupations, gender-based discrimination (wage inequities, sexual harassment, exclusionary policies), the contributions of women to the economy and the role of law in shaping conditions for women in the workplace. May be cross-listed with SOCI 206
WOMS 207 Women, Power and Success 3
Research, theory and possible strategies related to expanding the horizons in achieving "power" and "success" in women's lives. Topics include socializing girls to be successful, evaluating personal strengths and goals, and a new model of women and power.

WOMS 210 Women and Religion 3
Examines the impact of Near Eastern and Judeo-Christian scriptures on women in the family and society, especially focusing on women's roles as mystics and leaders within and outside of institutional religion. Also covers recent feminist approaches to religion. May be cross-listed with PHIL 210.

WOMS 211 Men, Conflict and Social Change 3
Examination of male roles and images in society, utilizing an interdisciplinary social science perspective. Topics include the family, work, military, violence and the implications of feminism for men. Issue-oriented. May be cross-listed with SOCI 211.

WOMS 212 Motherhood in Culture and Politics 3
Examines contemporary cultural and political issues related to motherhood and mothering experience, including definitions and cultural significance of motherhood, experiences of childbirth, effects of new reproductive technologies, surrogate mothering and "maternal thinking," also, efforts to avoid motherhood through contraception and abortion and related legal controversies.

WOMS 213 Men and Women in American Society 3
See SOCI 213 for course description.

WOMS 216 Introduction to Feminist Theory 3
See PHIL 216 for course description.

WOMS 222 Language and Gender 3
See LING 222 for course description.

WOMS 233 Women, Biology and Medicine 3
Considers societal theories and medical practices concerning women and discusses their biological basis, their biological effects, sources of information with which to evaluate them, etc. Emphasis on preparing the student to make their own medical and obstetrical decisions and to critically evaluate claims concerning male/female differences. May be cross-listed with CSSC 233.

WOMS 240 Women and Violence 3
Analyzes a variety of issues and topics relating to women and violence, including rape, domestic violence, images of women in popular culture, incest and child abuse, pornography, sexual harassment and women who use violence. Presents descriptive materials, sociological analysis and strategies for change.

WOMS 242 Women in Art 3
See ARTH 240 for course description.

WOMS 290 History of Women and Education 3
See EDST 290 for course description.

WOMS 291 Women's History through Film 1
Explores women's historical experiences through the medium of film. Students will view and discuss a variety of documentary films on women and read materials related to topics covered in the films. Films will deal with historical and contemporary issues in the United States and internationally. May be cross-listed with HIST 291.

WOMS 297 Research in Lesbian, Gay and Bisexual Studies 1 PF
Lectures by social science, arts and humanities scholars and researchers on new issues raised by gays, lesbians and bisexuals; their social movements and history; history of their lives and achievements; heterosexism, homophobia and the social construction of sexuality in social relations, cross-culturally and historically.

WOMS 298 Research on Race, Ethnicity and Culture 1 PF
Lecture series in which faculty and guest speakers discuss their research on contemporary and historical perspectives on race, ethnicity and culture. Research presented from several disciplines, including sociology, history, literature, anthropology and psychology, among others. May be cross-listed with BAM 298.

WOMS 299 Research on Women 1 PF
Interdisciplinary lectures in which faculty, staff and advanced students share results of their research on women. Lectures cover issues in anthropology, sociology, political theory, psychology, philosophy, literature, history, theology, ethnic studies, music, art, math education, health, etc.

WOMS 300 Women in American History 3
See HIST 300 for course description.

WOMS 302 Women in Music: An Alternate Survey 3
See MUSC 302 for course description.

WOMS 305 The Evolution of Human Sex Roles and Reproduction 3
See ANTH 305 for course description.

WOMS 320 Varied Authors and Genres 3
See FLIT 320 for course description.

WOMS 323 Introduction to Women and Politics 3
See POSC 323 for course description.

WOMS 325 Topics in German Literature in Translation 3
See FLIT 325 for course description.

WOMS 326 Topics in Hispanic Literature in Translation 3
See FLIT 326 for course description.

WOMS 328 Topics in Japanese Literature in Translation 3
See FLIT 328 for course description.

WOMS 330 Varied Authors, Themes and Movements 3
See FLIT 330 for course description.

WOMS 333 Psychology of Women 3
See PSYC 333 for course description.

WOMS 335 Women and Mental Health 3
Focuses on sociocultural dynamics influencing the psychological development of women, prevalent mental disorders among women and the common types of psychotherapeutic treatment of women.

WOMS 338 Topics in Philosophy and Gender 3
See PHIL 338 for course description.

WOMS 350 Women and Criminal Justice 3
See CRJU 350 for course description.

WOMS 353 Twentieth Century British Literature 3
See ENGL 353 for course description.

WOMS 363 Women in Cross-Cultural Perspective 3
Social realities of women within the cultures of Asia, Africa and Latin American societies. How institutions such as motherhood, the family, sexuality and work structure women's lives within the dominant social ideologies. May be cross-listed with ANTH 363.

WOMS 366 Independent Study 1-6

WOMS 380 Women Writers 3
See ENGL 380 for course description.

WOMS 381 Women in Literature 3
See ENGL 381 for course description.

WOMS 382 Studies in Multicultural Literature in English 3
See ENGL 382 for course description.

WOMS 389 Topics in Women and Health Issues 3
Examines special topics related to women's health. Topics may include, but are not limited to: the relationship between women, health and development; theoretical contributions of feminism to thinking about relationships between gender and health; and women's health conditions and responses to treatment in various parts of the world. May be cross-listed with CSSC 389 and/or PHIL 389.

WOMS 390 Honors Colloquium 3
See ARSC 390 for description. May be cross-listed with ANTH 390, IFST 390 and/or PHIL 390.

WOMS 392 Honors Colloquium 3
See ARSC 392 for course description. May be cross-listed with PHIL 392.

WOMS 401 Foundations of Human Sexuality 3
See IFST 401 for course description.

WOMS 407 Sociology of Sex and Gender 3
See SOCI 407 for course description.

WOMS 413 Problems in American Government 3
See POSC 413 for course description.

WOMS 415 Race, Class and Gender 3
See SOCI 415 for course description.

WOMS 430 Teaching Family Life 3
See IFST 430 for course description.
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<td>WOMS 436</td>
<td>Politics and Literature</td>
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<td>WOMS 440</td>
<td>Topics in Interpersonal and Organizational Communication</td>
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<td>WOMS 442</td>
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<td>Women in International Development</td>
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<td>WOMS 465</td>
<td>Studies in Literature Genres, Types and Movements</td>
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RESTRICTIONS: Requires permission of instructor.