AASP — Afro-American Studies

AASP 100 Introduction to Afro-American Studies (3) Significant aspects of the history of Afro-Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal, and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

AASP 101 Public Policy and the Black Community (3) Formerly AASP 300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic, and political well-being of minorities. Particular attention given to the post-1960 period.

AASP 200 African Civilization (3) A Survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

AASP 202 Black Culture in the United States (3) The course examines important aspects of American Negro life and thought which are reflected in Afro-American literature, drama, music, and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the 19th-century to the present.

AASP 298 Special Topics in Afro-American Studies (3) Repeatable to 6 credits if content differs. An introductory interdisciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.

AASP 299 Selected Topics in Afro-American Studies (1-3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.

AASP 301 Applied Policy Analysis and the Black Community (3) Prerequisite: AASP 101 and ECON 200 or AASP 101 and ECON 301. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

AASP 303 Computer Applications in Afro-American Studies (3) Prerequisite: STAT 100 or SOCY 201 or ECON 321 or equivalent course with permission of department. Formerly AASP 401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of methodological arguments, epistemological questions of methodology and the relationship between policy making and policy research.

AASP 310 African Slave Trade (3) Prerequisite: AASP 100 or AASP 202 or permission of department. Formerly AASP 311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 310 African Slave Trade (3) Prerequisite: AASP 100 or AASP 202 or permission of department. Formerly AASP 311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 311 African Slave Trade (3) Prerequisite: AASP 100 or AASP 202 or permission of department. Formerly AASP 311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 312 Social and Cultural Effects of Colonization and Racism (3) Prerequisite: AASP 100 or AASP 202. A comparative approach to the study of the social and cultural effects of colonization and racism on black people in Africa, Latin America and in the United States—community and family life, religion, economic institutions, education and artistic expression.

AASP 314 The Civil Rights Movement (3) Prerequisite: AASP 100 or HIST 157. Survey of the twentieth-century civil rights movement from the desegregation of Mil Law School through the National Black Political Congress in Gary in 1972. Major themes include leadership, legal and constitutional challenges, nonviolence, Black Power, Pan-Africanism.

AASP 397 Senior Thesis (3) Prerequisites: permission of department. A student may write a senior thesis in one of the following areas: French, German, Spanish, Italian, History, Philosophy, Music, English, Modern Foreign Languages, African Studies, Economics, Political Science, Religious Studies, and American Studies.

AASP 398 Selected Topics in the African Diaspora (3) Repeatable to 6 credits if content differs. Analysis of the historical experiences and cultures of Africans in the diaspora.

AASP 400 Directed Readings in Afro-American Studies (3) Prerequisite: AASP 100 or AASP 202. The readings will be directed by the faculty of Afro-American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.

AASP 402 Classic Readings in Afro-American Studies (3) Prerequisite: AASP 100 or AASP 202. Classic readings of the social, economic, and political status of blacks and other minorities in the United States and the Americas.

AGNR 305 Teaching Young and Adult Farmer Groups (3) Formerly AMGR 305. Characteristics of young and adult farmer instruction in agriculture. Determining needs for and organizing a course; selecting materials for instruction; and class management. Emphasis is on the conference method of teaching.

AGNR 311 Teaching Secondary Vocational Agriculture (3) formerly AGRI 311. A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particulars of classroom and farm teaching programs, the organization and administration of future farmer activities, and objectives and methods in all-day instruction.

AGNR 313 Student Teaching (5) Prerequisite: satisfactory academic average and permission of department. Formerly AGRI 313. Supervision in an off-campus student teaching center under an approved supervising teacher of selected phase of agriculture not normally associated with one.

AGNR 401 Agricultural Support Systems in Developing Countries (3) Special Problems. Aids from horticulture to veterinary medicine. An examination of the skills, techniques, and skills in the nonfarm maleverständ of international development. Review of a wide variety of roles of social functions, studies the critical issues, explores career objectives and methods in all-day instruction.

AGNR 405 Human Resources Development in Agriculture (3) Prerequisite: satisfactory academic average and permission of department. Formerly AMGR 405. Participation in selected aspects of extension education in an off-campus student teaching center.

AGNR 406 Directed Experience in Extension Education (1-5) Prerequisite: satisfactory academic average and permission of department. Formerly AGRI 406. Participation in selected aspects of extension education in an off-campus student teaching center.

AGNR 407 Directed Experience in Agro-Industrial Management (1-5) Prerequisite: satisfactory academic average and permission of department. Formerly AGRI 407. Participation in selected aspects of extension education in an off-campus student teaching center.

AGNR 409 Field Experience (1-4) Prerequisite: permission of department. Repeatable to 4 credits if content differs. Formerly AGRI 409. An introduction to the principles of agricultural education as a profession.

AGRO 420 Soil Physical Properties Laboratory (1) Three hours of laboratory per week. Pre- and corequisites: NSRC 417. A study of methods used in measuring static and dynamic soil physical properties. This includes an increased understanding of soil physical properties, soil-water interactions, as well as the generation of a soil profile. This course will use the physical processes taking place in and through the soil.

AGRO 483 Plant Breeding Laboratory (2) Prerequisites: AGRO 403 and permission of department. Current plant breeding research being conducted at The University of Maryland and USDA will be discussed with plant breeders about the plant breeding techniques, breeding methods, and program achievements and goals. Field trips to selected USDA laboratories.

AGRO 499 Special Problems in Agronomy (1-3) Prerequisites: former AGRO 202, AGRO 406, AGRO 407 or permission of department. A detailed study, including a written report of an important problem in agronomy.

AMSC 460 Computational Methods (3) Prerequisites: MATH 241, MATH 246, and MATH 240. Formerly MAPL 460. Computational methods to investigate these models, and numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Students will work in groups on specific problems involving real-life problems that are accessible to their existing mathematical background. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

AMSC 452 Introduction to Dynamics and Chaos (3) Prerequisites: MATH 240, and MATH 246. Also offered as MAPL 452. Credit will be granted for only one of the following: AMSC 452, MAPL 452. An introduction to chaos theory and dynamical systems. Topics include simple dynamical systems, fractals, dimension, notions of stability, flows, and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

AMSC 460 Computational Methods (3) Prerequisites: MATH 240 and MATH 241 and CMSC 105 or CMSC 106 or CMSC 124 or ENEE 114 or permission of instructor. Also offered as CMSC 466. Credit will be granted for only one of the following: AMSC/MAPL/CMSC 460 or AMSC/MAPL/CMSC 466. Formerly MAPL 460. Basic computational methods for interpolation, least squares fitting, and solving the systems of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

AMSC 466 Introduction to Numerical Analysis I (3) Prerequisites: MATH 240 and MATH 241 and CMSC 105 or CMSC 106 or CMSC 124 or ENEE 114 or permission of instructor. Also offered as CMSC 466. Credit will be granted for only one of the following: AMSC/MAPL/CMSC 460 or AMSC/MAPL/CMSC 466. Formerly MAPL 460. Floating point computations, direct methods for linear systems, inter polation, solution of nonlinear equations.

AMSC 467 Introduction to Numerical Analysis II (3) Prerequisites: AMSC/MAPL/CMSC 460 with a grade of C or better. Also offered as CMSC 467. Credit will be granted for only one of the following: AMSC/MAPL/CMSC 460 or AMSC/MAPL/CMSC 466. Formerly MAPL 467. Advanced interpolation, linear least squares, eigenvalue problems, ordinary differential equations, fast Fourier transforms.

AMSC 472 Methods and Models in Applied Mathematics I (3) Prerequisites: MATH 240 and MATH 241; and PHYS 161 or PHYS 167. Recommended: one of the following: MATH 410, MATH 414, MATH 415, MATH 420, MATH 472, MATH 473. Also offered as MATH 472. Credit will be granted for only one of the following: AMSC/MAPL/CMSC 472, MAPL 472, or MATH 472. Formerly MAPL 472. Mathematical models in fluid dynamics and elasticity, both linear and non-linear partial differential equations, variational characterizations in eigenvalue problems, numerical and asymptotic algorithms. Additional optional topics as time permits. Some examples are Hamiltonian systems, Maxwell's equations, non-linear programming.

AMSC 473 Methods and Models in Applied Mathematics II (3) Prerequisites: AMSC/MAPL/CMSC 472 or permission of department. Also offered as MATH 473. Credit will be granted for only one of the following: AMSC 473, MAPL 473 or MATH 473. Formerly MAPL 473. Continuation of the two-semester sequence, MAPL 472 and MAPL 473.

AMSC 477 Optimization (3) Prerequisites: AMSC/MAPL/CMSC 460, or AMSC/MAPL/CMSC 466 or AMSC/MAPL/CMSC 467 with a grade of C or better. Also offered as MAPL 477. Credit will be granted for only one of the following: AMSC 477, CMSC 477 or MAPL 477. Formerly MAPL 477. Linear programming including the simplex algorithm and dual programs, convex sets and elements of convex programming, combinatorial optimization, integer programming.

AMSC 498 Selected Topics in Applied Mathematics (1-3) Repeatable to 6 credits if content differs. Formerly MAPL 498. Topics in applied mathematics of special interest to advanced undergraduate students.

AMST — American Studies

AMST 201 Introduction to American Studies (3) Introduction to American culture—past and present—by examining the concept of “self” in autobiographical writing and the concept of “society” in accounts of various communities.

AMST 203 Popular Culture in America (3) An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

AMST 204 Film and American Culture Studies (3) Exploration of American film as a lens illustrating the development of American culture, the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

AMST 205 Material Aspects of American Life (3) Historical exploration of American material culture and the ways of describing and interpreting accumulated material evidence (e.g., buildings, town plans) introduced by stressing relationship between artifact and culture.

AMST 207 Contemporary American Cultures (3) World views, values, and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps.

AMST 211 Technology and American Culture (3) Historical and contemporary technological innovations in American society, with special emphasis on the humanities. Varied social and cultural responses to one contemporary technological issue e.g. (environmental pollution, genetic engineering, communications technology, and psychopharmacology).

AMST 212 Diversity in American Culture (3) Exploration of the role of diversity in the shaping of American culture. Special emphasis will be placed on the multicultural origins of American popular and material culture, such as foodways and regional traditions. 

AMST 298 Selected Topics in American Studies (3) Repeatable to 6 credits if content differs. Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.

AMST 330 Critics of American Culture (3) Prerequisite: prior course in AMST, HIST, or SOCY. Philosophies of American social purpose and promise. Readings from “classical” American thinkers, contemporary social commentators, and American studies scholars.

AMST 398 Independent Studies (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture.

AMST 418 Cultural Themes in America (3)Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as “growing up American,” “culture and mental disorders,” “race,” “gender,” “regionalism,” “landscape,” and “humor.”

AMST 428 American Cultural Eras (3) Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as “growing up American,” “culture and mental disorders,” “race,” “gender,” “regionalism,” “landscape,” and “humor.”

AMST 429 Perspectives on Popular Culture (3) Repeatable to 6 credits if content differs. Topics in popular culture studies, including the examination of particular genres, themes, and issues.
AMST 432 Literature and American Society (3) Prerequisite: prior coursework in American literature and/or history. Examination of the relationship between literature and society, including literary as cultural communication and the institutions which influence its production, distribution, conservation, and evaluation.

AMST 450 Seminar in American Studies (3) Prerequisite: nine hours prior coursework in American Studies, including AMST 201. Senior standing. For AMST majors only. Developments in theories and methods of American Studies scholarship, with emphasis on interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.

ANSC — Animal Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, or to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

ANSC 101 Principles of Animal Science (3) Two hours of lecture and two hours of laboratory per week. A comprehensive course, including the development of animal science, its contributions to the economy, characteristics of animal products and factors of efficient, and economical production and distribution.

ANSC 102 Animal Products Safety and Processing (3) Two hours of lecture and two hours of laboratory per week. Recommended as an overview of food safety practices that relate to animal production and processing practices. The course will familiarize students with the processing industries responsible for generating numerous value-added animal products and provide an illustration of how animal production and processing practices can have significant effects on the safety of animal food products.

ANSC 180 Introduction to Dairy Foods (2) One hour of lecture and two hours of laboratory per week. A lecture/laboratory course designed to provide theoretical and applied exposure to determining the chemical, physical, and microbiological characteristics and analysis of milk. Two hours of laboratory per week. Students will gain an in-depth understanding of the processing and handling factors that affect dairy products as well as an understanding of the process of sensory evaluation.

ANSC 210 Anatomy of Domestic Animals (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: ANSC 105. A systematic gross and microscopic comparative study of the anatomy of the major domestic animals. Special emphasis is placed on those systems important in animal production.

ANSC 212 Applied Animal Physiology (3) Prerequisite: ANSC 101 or equivalent. The physiology of domesticated animals with emphasis on functions related to production, and the physiological adaptation to environmental influences.

ANSC 214 Applied Animal Physiology Laboratory (3) Three hours of lecture and two hours of laboratory per week. Prereq or coreq: ANSC 212. Application of physiological laboratory techniques to laboratory and domestic animals.

ANSC 220 Livestock Management (4) Prerequisite: ANSC 101. Formerly ANSC 221. Management of meat animals including beef, sheep, and swine. Breeding, feeding, management and marketing practices at the leading edge of technology for maximum economic efficiency.

ANSC 222 Meats (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: BIOL 101 and ANSC 220. Meat: characteristics and relationships of processing meat. Factors influencing meat quality. Meat quality of livestock at time of slaughter. Application of laboratory techniques to study of meat and meat products. Two hours of lecture and two hours of laboratory per week.

ANSC 224 Dairy Cattle Management Practicum (1) Two hours of laboratory per week. Prerequisite: ANSC 240. Formerly ANSC 242. Practicum to parallel ANSC 240. Field trips required.

ANSC 226 Commercial Poultry Management (3) Prerequisite: BIOL 105. Care and management of the companion small animals. Principles of nutrition, source and nutritional deficiency syndromes of laboratory and farm animals. Special emphasis will be given to animals and humans. Repeatable to 2 credits if content differs. Also offered as NFSC 226. Credit will be granted for only one of the following: ANSC 226 or NFSC 226.

ANSC 289 Animal Agriculture Field Trip (1) Two hours of laboratory per week. Prerequisite: ANSC 220. Credit will be granted for only one of the following: ANSC 220 or ANSC 242. Formerly ANSC 424. Practicum to parallel ANSC 220. Field trips required.

ANSC 251 Beef and Sheep Management Practicum (1) Three hours of laboratory per week. Prerequisite: ANSC 220. Credit will be granted for only one of the following: ANSC 220 or ANSC 242. Formerly ANSC 424. Practicum to parallel ANSC 220. Field trips required.

ANSC 252 Introduction to the Diseases of Wildlife (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: ANSC 101 or equivalent or permission of department. The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following: signs evidenced by the affected animal, disease transmission, and effects of the disease on the population of the species involved.

ANSC 262 Commercial Poultry Management (3) Prerequisite: ANSC 101. A symposium on the relationship between literature and society, including literary as social communication and the institutions which influence its production, distribution, conservation, and evaluation. The course will familiarize students with the processing industries responsible for generating numerous value-added animal products and provide an illustration of how animal production and processing practices can have significant effects on the safety of animal food products.

ANSC 271 Swine Management Practicum (1) Three hours of laboratory per week. Prerequisite: ANSC 220. Formerly ANSC 421. Practicum to parallel ANSC 220. Field trips required.

ANSC 289 Animal Agriculture Tour (1) 24 hours of laboratory and 5 hours of discussion per semester. Prerequisite: ANSC 101. Repeatable to 2 credits if content differs. An intensive field study of farms, businesses and related organizations involved in animal agriculture. Emphasis on animal care and management, facilities, production, procedures, and career opportunities. Up to five hours of discussion and a three-day field trip during spring break are required.

ANSC 305 Companion Animal Care (3) Prerequisite: BIOL 105. Care and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds, and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

ANSC 314 Comparative Animal Nutrition (3) Prerequisites: ANSC 101 and (CHEM 104 or CHEM 233). Formerly ANSC 215. Nutrients and their fundamental role in animal metabolism, in relation to their biochemical role in metabolism, diet, absorption, and their deficiency symptoms.

ANSC 327 Quantitative Domestic Animal Genetics (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BIOL 222. Population and quantitative genetics as applied to domestic livestock; concepts of variation, heredity and relationship, breeding systems. Genetic evaluation, selection for improvement, and measuring genetic progress will be emphasized.

ANSC 332 Horse Management (3) Prerequisite: ANSC 101. Formerly ANSC 223. Management of horses including reproduction, nutrition, genetics, and management techniques.

ANSC 350 Ornithology (4) Three hours of lecture and three hours of laboratory per week. Three mandatory field trips. Prerequisite: BIOL 105. Includes systematic, anatomy, physiology, behavior, life histories, ecology, population dynamics, evolution, and conservation of birds.

ANSC 370 Animal Agriculture: Scientific and Cultural Perspectives (3) Prerequisite: BIOL 105. Study will focus on the enhancement of biological efficiency that permits more extensive options for choice of human activities, within the framework of the agricultural system. Course includes an extensive study of the growth of knowledge, of both cultural and scientific origin, as applied in the development of successful human-animal systems.

ANSC 388 Honors Thesis Research (3-6) Prerequisite: ANSC 420. Formerly ANSC 488. Formerly ANSC 492. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ANSC 397 Senior Seminar (1) Prerequisite: permission of department. Career and professional opportunities. Overview of student organizations, placement offices and governmental agencies. Preparation and presentation of animal science topics.

ANSC 398 Seminar (1) Repeatable to 2 credits if content differs. Presentation and discussion of current literature and research work in animal science.

ANSC 399 Special Problems in Animal Science (1-2) Work assigned in proportion to amount of credit. A course designed for advanced undergraduates in which specific problems relating to animal science will be assigned.

ANSC 401 Fundamentals of Nutrition (3) Prerequisite: CHEM 104 and ANSC 212. Recommended: CHEM 261. A study of the fundamental role of all nutrients in the body including their digestion, absorption, and metabolism. Dietary requirements and nutritional deficiency syndromes of laboratory and farm animals and humans.

ANSC 412 Introduction to Diseases of Animals (3) Two hours of lecture and one laboratory period per week. Prerequisite: MIBM 200 and BIOL 105. This course gives basic instruction in the identification and control of the common diseases causing death, injury, and disease. Emphasis on parasites of veterinary importance: their identification, life cycles, pathological effects, and control by management.

ANSC 413 Laboratory Animal Management (3) A comprehensive course in care and management of laboratory animals. Emphasis will be placed on physiology, anatomy, and special uses for the different species. Disease prevention and quality assurance for maintaining animal colonies will be covered. Field trips will be required.

ANSC 415 Parasitic Diseases of Domestic Animals (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC 412 or equivalent. A study of parasitic diseases resulting from protozoa, helminths and arthropod infestation. Emphasis on parasites of veterinary importance: their identification, life cycles, pathological effects and control by management.

ANSC 420 Animal Production Systems (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: ANSC 101, ANSC 220, and (ANSC 240 or ANSC 262). Formerly ANSC 423. Effect of management and economic decisions on animal production enterprises. Computer simulations of intensive and extensive production units.

ANSC 430 Food Microbiology (2) Prerequisite: MIBM 200 or equivalent. Also offered as NFSC 430. Credit will be granted for only one of the following: ANSC 430 or NFSC 430. A study of the microorganisms of major importance to the food industry with emphasis on foodborne outbreaks, public health significance, bacterial growth in foods, disease control, and the microbial spoilage of foods.

ANSC 434 Food Microbiology Laboratory (2) Four hours of laboratory per week. Prereq or coreq: ANSC 430 or NFSC 430. Also offered as NFSC 434. Credit will be granted for only one of the following: ANSC 434 or NFSC 434. A study of techniques and procedures used in the microbiological examination of foods.

ANSC 443 Physiology and Biochemistry of Lactation (3) Prerequisite: ANSC 212 or equivalent; and BCHM 261 or BCHM 412. Nutritional, physiological, and biochemical regulation in domestic animals, particularly cattle. Mammary gland development and maintenance from the embryo to the fully lactating gland. Abnormalities of the mammary gland.

ANSC 446 Physiology of Mammalian Reproduction (3) Prerequisite: BSCI 440 or ANSC 212. Anatomy and physiology of reproductive processes in domesticated and wild mammals.

ANSC 447 Physiology of Mammalian Reproduction Laboratory (1) Three hours of laboratory per week. Prereq or coreq: ANSC 446. Animal handling, artificial insemination procedures and analytical techniques useful in animal management and reproductive research.

ANSC 451 Dairy Products Processing (3) Two hours of lecture and four hours of laboratory per week. Prereq or coreq: ANSC 451. Method of production of fluid milk, butter, cheese, condensed and evaporated milk and milk products, and ice cream.
ANSC 452 Avian Physiology (3) Two-hour lecture/laboratory period periods per week. Three hours of lecture per week. Prerequisite: a basic course in animal anatomy and/or physiology. Recommended: ANSC 212, Applied Animal Physiology, 30 semester hours. Credit will be granted for only one of the following: ANSC 452. The digestive, excretory, respiratory, circulatory, immune, skeletal muscle, endocrine, and nervous systems of avian species will be examined.

ANSC 453 Animal Welfare (3) Prerequisite: ANSC 101 or ZOOL 201 or permission of instructor. Ethical concerns pertinent to the use of animals in modern society. Historical and philosophical aspects of human/animal interrelationships. Animal intelligence and awareness, and the treatment of animals in agriculture and scientific research will be considered.

ANSC 455 Applied Animal Behavior (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: (ANSC 101 or BSCI 106) and BSCI 222. Principles of animal behavior applied to production systems in animal agriculture.

ANSC 461 Technology of Market Eggs and Poultry (3) Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: ANTH 101 or ANTH 220. Formerly ANTH 101. Human biological evolution, including the biogeography and taxonomy, human groups, non-human primate social behavior, and the fossil, biochemical, and molecular evidence for human evolution. Includes a laboratory study of human population genetics, biochemical variation, and anatomical diversity in modern and fossil human and non-human primate groups.

ANTH 220 Introduction to Biological Anthropology (4) Three hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: ANTH 101 or ANTH 220. Formerly ANTH 101. Human biological evolution, including the biogeography and taxonomy, human groups, non-human primate social behavior, and the fossil, biochemical, and molecular evidence for human evolution. Includes a laboratory study of human population genetics, biochemical variation, and anatomical diversity in modern and fossil human and non-human primate groups.

ANTH 221 Exploration of the variety of past human societies and cultures through archaeology, from the emergence of anatomically modern humans to the more recent historical past.

ANTH 222 Chesapeake: An Anthropology of Maryland (3) Human presence in the Chesapeake from the first arrival of Native Americans to the present. Emphasis is upon the historical archaeology of the region from European contact through the Nineteenth Century.

ANTH 260 Introduction to Sociocultural Anthropology and Linguistics (3) Credit will be granted for only one of the following: ANTH 102 or ANTH 260. Formerly ANTH 102. Culture and society, including cultural variability and sociocultural change, from simple to complex societies. An overview of how anthropology analyzes human behavior. Particular attention to the relationship between language and culture.

ANTH 261 Culture and Environment (3) Prerequisite: ANTH 260 or permission of department. Credit will be granted for only one of the following: ANTH 221 or ANTH 262. Formerly ANTH 221. Theory and method in cultural ecology and the formulation of a critical perspective on the explanation of the concept of adaptation. Includes the ecological understanding of gender differences and considers conflicting natural resource management strategies and environmental degradation.

ANTH 288 Special Topics in Anthropology (3) Repeatable to 6 credits if content differs. Anthropological perspectives on selected topics of broad general interest.

ANTH 320 Human Evolution (4) Prerequisite: ANTH 220. Credit will be granted for only one of the following: ANTH 320 or ANTH 361. Formerly ANTH 361. Assessment of the fossil, biochemical, and molecular evidence for human evolution from the divergence of hominids from the pongid line to modern times. Includes an examination of the evolutionary history of hominids, the fossil record, and the molecular evidence supporting human evolution. Also offered as ANTH 625. Credit will be granted for only one of the following: ANTH 425 or ANTH 625. Introduction to the relationships between culture, health practices, and community development viability. Focus on the interplay of disease and geography. Recommended: BSCI 311.

ANTH 410 Origins of Modern Humans (3) Prerequisite: ANTH 320 or permission of department. Principles of taxonomy as applied to the fossil evidence for human emergence; a discussion of fossils; biological and cultural change; data on molecular and cellular evolution; and a discussion of demographic and ecological patterns as they effect evolutionary change from region to region.

ANTH 425 Applied Biological Anthropology (3) Formerly ANTH 607. Introduction to major contributions to applied biological anthropology. Topics include reproduction and fertility, nutrition, pollution, physical fitness, and degenerative metabolic disease.

ANTH 428 Special Topics in Bioanthropology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Advanced research courses in biological anthropology on changing topics that correspond to new theoretical interests, faculty research interests, or the specialties of visiting scholars. Prerequisites or background knowledge vary with the topic; check with the department for requirements.

ANTH 440 Historical Archaeology (3) Prerequisite: ANTH 220. Recommended: ANTH 360. Formerly ANTH 440. Historical archaeology to study the recovery of past societies and cultures, and the understanding of cultural change and meaning.

ANTH 448 Special Topics in Archaeology (3) Prerequisite: ANTH 320 or permission of department. Repeatable to 6 credits if content differs. Advanced research courses in archaeological research, corresponding to new theoretical developments, faculty research interests, or the specialties of visiting scholars. Prerequisites may vary with the topic; check with the department for requirements.

ANTH 450 Resource Management and Cultural Process (3) Junior standing. Also offered as ANTH 650. Credit will be granted for only one of the following: ANTH 450 or ANTH 650. Includes topics such as: resource management, to include natural resources, agricultural development, heritage management, urban and regional development, and tourism development. Focus on ecological and cultural approaches.

ANTH 454 Anthropology of Travel and Tourism (3) Review of anthropological contributions to the study of tourism and tourism development. Topics include the political economy of tourism, environmental impact, the growth of ecotourism, and sustainable tourism development.

ANTH 460 Interpreting Anthropology (3) Prerequisite: ANTH 260 or permission of department. Anthropological approaches which seek to explain human behavior in terms of meaning and their relationships to other aspects of social life.

ANTH 462 Kinship and Social Organizations (3) Prerequisite: ANTH 260. Recommended: ANTH 360. Credit will be granted for only one of the following: ANTH 462 or ANTH 431. Formerly ANTH 462. An examination of the various social structures, including those that are characteristic of complex, state-level sociocultural systems. It will employ methods and insights deriving from historical data, as well as from those resulting from a wide range of intensive ethnographic inquiries.

ANTH 464 Culture and Sustainable Development (3) Prerequisite: ANTH 262 or equivalent. Also offered as ANTH 686V. Credit will be granted for only one of the following: ANTH 464 or ANTH 686V. Explores anthropological approaches to economic development, particularly the new sub-field of sustainable development. Examines the local-level social, political, and economic consequences of development and the potential for grass roots strategies to manage resources.

ANTH 468 Special Topics in Cultural Anthropology (3) Formerly ANTH 468. Recommended: ANTH 360. Credit will be granted for only one of the following: ANTH 468 or ANTH 688. Repeatable to 6 credits if content differs. Advanced courses in varying specialty areas of cultural anthropology that respond to new theoretical developments, faculty research interests, or the specialties of visiting scholars.

ANTH 470 History and Philosophy of Anthropological Inquiry (3) Prerequisite: ANTH 220 or ANTH 240 or ANTH 260. Recommended: ANTH 320 or ANTH 340 or ANTH 360 or ANTH 380. Credit will be granted for only one of the following: ANTH 470 or ANTH 397. Formerly ANTH 397. Important philosophical and historical aspects of anthropological theorizing. Attention is given to the major paradigms and the latter (including Methodological) assumptions of the major camps and paradigms in anthropology over the past one hundred or so years. Results on the historiography of the last three decades. A focus on developments in cultural anthropology, while addressing the other subfields of anthropology.

ANTH 476 Senior Research (3-4) For ANTH majors only. Credit will be granted for only one of the following: ANTH 476 or ANTH 486. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of a senior thesis in anthropology.

ANTH 477 Senior Thesis (3-4) Prerequisite: ANTH 476; permission of department. For ANTH majors only. Credit will be granted for only one of the following: ANTH 477 or ANTH 487. Capstone course in which students write a senior thesis on an independent research project. The thesis is defined before a committee of faculty.

ANTH 478 Special Topics in Linguistics (3) Prerequisite: ANTH 380 or permission of department. Recommended: LING 200 or equivalent. Also offered as ANTH 688. Repeatable to 6 credits if content differs. Advanced courses in specialty areas that respond to new theoretical developments and faculty research interests in linguistics.

ANTH 486 Honors Research (3-4) Prerequisites: permission of department; admission to University Honors Program or Anthropology Honors Program. Credit will be granted for only one of the following: ANTH 486 or ANTH 476. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of an honors thesis in anthropology.
ANTH 487 Honors Thesis (3-4) Prerequisites: ANTH 486; permission of participation on University Honors Program or Anthropology Honors Program. For ANTH majors only. Credit will be granted for only one of the following: ANTH 487 or ANTH 488. One course in which students write a thesis on the results of independent research into a current problem in anthropology.

ANTH 496 Field Methods in Archaeology (6) Formerly ANTH 499. Field training in the techniques of archaeological survey and excavation.

ANTH 498 Ethnographic Fieldwork (3-6) Prerequisite: permission of the instructor. One course in which students write a thesis on the results of independent research into a current problem in anthropology.

ARCH 220 or permission of department. Survey of Western civilization, with consideration of parallel developments in the eastern world.

ARCH 221 or permission of department. Field training in the techniques of archaeological survey and excavation.

ARCH 222 Intermediate Arabic II (3) Prerequisite: ARCH 220 or equivalent. Continuation of ARCH 221.

ARCH 223 History of Arabian Art (3) Introduction to modern Arabian art in both its spoken and written form. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.

ARCH 227 History of Architecture (3-4) Prerequisites: ARCH 220 or permission of department. The design project, which will involve elements of planning; site design; architectural designing; and landscape architecture, will culminate in a model, a photograph of which will be available for inclusion in an application portfolio for admission to a university-level design program. Activities will include: field trips to design offices, built projects, lectures, and a hands on project. Participants will get a personal feeling for the ambiance of design school, and learn about design-education programs here and across the nation.

ARCH 228 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media.

ARCH 232 Drawing II: Line Drawing (3) Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH 228 or permission of department. For ARCH majors only. Basic free hand line drawing: perceptual, behavioral and technical aspects of environmental design; methods of analysis, problem solving, and project implementation.

ARCH 234 Drawing III: Conceptual Perceptual Behavioral Technical Aspects of Environmental Design (3) Survey of architectural history, including prehistoric and vernacular; ancient civilizations of Egypt, Mesopotamia and the Indus valley; the Islamic; Hindu and Buddhist traditions of Asia; and pre-European Africa; and the Americas.

ARCH 242 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media.

ARCH 243 Drawing II: Line Drawing (3) Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH 228 or permission of department. For ARCH majors only. Basic free hand line drawing: perceptual, behavioral and technical aspects of environmental design; methods of analysis, problem solving, and project implementation.

ARCH 244 Drawing III: Conceptual Perceptual Behavioral Technical Aspects of Environmental Design (3) Survey of architectural history, including prehistoric and vernacular; ancient civilizations of Egypt, Mesopotamia and the Indus valley; the Islamic; Hindu and Buddhist traditions of Asia; and pre-European Africa; and the Americas.

ARCH 242 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media.

ARCH 243 Drawing II: Line Drawing (3) Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH 228 or permission of department. For ARCH majors only. Basic free hand line drawing: perceptual, behavioral and technical aspects of environmental design; methods of analysis, problem solving, and project implementation.

ARCH 244 Drawing III: Conceptual Perceptual Behavioral Technical Aspects of Environmental Design (3) Survey of architectural history, including prehistoric and vernacular; ancient civilizations of Egypt, Mesopotamia and the Indus valley; the Islamic; Hindu and Buddhist traditions of Asia; and pre-European Africa; and the Americas.

ARCH 242 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media.

ARCH 243 Drawing II: Line Drawing (3) Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH 228 or permission of department. For ARCH majors only. Basic free hand line drawing: perceptual, behavioral and technical aspects of environmental design; methods of analysis, problem solving, and project implementation.

ARCH 244 Drawing III: Conceptual Perceptual Behavioral Technical Aspects of Environmental Design (3) Survey of architectural history, including prehistoric and vernacular; ancient civilizations of Egypt, Mesopotamia and the Indus valley; the Islamic; Hindu and Buddhist traditions of Asia; and pre-European Africa; and the Americas.

ARCH 242 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media.
Approved Courses 165

ARSC 311 Management and Leadership (3) Continuation of ARSC 310 for AFROTC cadets. Study of leadership and management skills and leadership ethics as well as communication skills required of Air Force officers. Open to all university students. AFROTC cadets also register for ARSC 159.

ARSC 320 National Security Forces in Contemporary American Society (3) Senior level course for AFROTC cadets. Study of American national security policy and processes to include information and implementation, impact of major national and international actors, and development of major policy issues. Open to all university students. AFROTC cadets also register for ARSC 159.

ARSC 321 National Security Forces in Contemporary American Society II (3) Senior level course for AFROTC cadets. This course examines various subjects including: the military law and justice, preparation for active duty, and current issues affecting military professionalism. Open to all university students. AFROTC cadets also register for ARSC 159.

ARTH — Art History & Archaeology

ARTH 100 Introduction to Art (3) No credit toward the major can be received for this course. Major approaches to understanding the visual arts, and includes analysis of techniques, subject matter, and form. Painting, sculpture, architecture, and the graphic arts.

ARTH 200 Art of the Western World to 1300 (3) Painting, sculpture, and architecture from prehistoric times to the Renaissance.

ARTH 201 Art of the Western World after 1300 (3) Painting, sculpture, and architecture from the present.

ARTH 250 Art and Archaeology of Ancient America (3) Art and archaeology of ancient Mesoamerica from 500 B.C. to 1500 A.D.

ARTH 275 Art and Archaeology of Africa (3) Appreciation of the art of African cultures. A survey of African culture through painting, sculpture, and architecture from prehistoric times to the present.

ARTH 289 Special Topics in Art History and Archaeology (3) Repeatable to 6 credits if content differs. Selected topics in the visual arts and/or architecture in the context of various modes of visual expression and communication.

ARTH 290 Art of Asia (3) South and East Asian art from prehistory through the mid-19th century.

ARTH 300 Egyptian Art and Archaeology (3) Formerly ARTH 400. Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

ARTH 301 Aegean Art and Archaeology (3) Formerly ARTH 401. Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

ARTH 302 Greek Art and Archaeology (3) Formerly ARTH 402. Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

ARTH 303 Roman Art and Archaeology (3) Formerly ARTH 403. Sites and monuments of painting, sculpture, architecture, and the minor arts from the Roman period from the first century B.C. to the fifth century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

ARTH 307 Late Roman and Early Christian Art and Archaeology (3) Formerly ARTH 405. Painting, sculpture, architecture, and the minor arts from the late Roman and early Christian periods through the sixth century A.D.

ARTH 310 Byzantine Art and Archaeology (3) Formerly ARTH 406. Painting, sculpture, architecture, and the minor arts from the seventh century to 1453 A.D.

ARTH 313 Early Medieval Art (3) Formerly ARTH 410. Painting, sculpture and architecture in Western Europe, ca. 500-1150.

ARTH 314 Gothic Art (3) Formerly ARTH 411. Painting, sculpture and architecture in Western Europe, ca. 1150-1400.

ARTH 320 Fourteenth and Fifteenth-Century Northern European Art (3) Formerly ARTH 420. The art of northern Europe with an emphasis on painting in the Netherlands and France.


ARTH 323 Fifteenth-Century Italian Renaissance Art (3) Formerly ARTH 440. A survey of Italian painting, sculpture, and architecture, and the decorative arts of the fifteenth century in Italy.

ARTH 324 Sixteenth-Century Italian Renaissance Art (3) Formerly ARTH 416. Painting, sculpture, architecture, and the decorative arts of the sixteenth century in Italy.

ARTH 330 Seventeenth-Century European Art (3) Formerly ARTH 430. Painting, sculpture and architecture concentrating on Northern Europe, Spain, and Italy. Special focus on the movements of the Baroque in the Low Countries.

ARTH 335 Seventeenth-Century Art in the Netherlands (3) Formerly ARTH 435. Painting, sculpture and architecture in seventeenth-century Netherlands.

ARTH 343 Eighteenth-Century European Art (3) Formerly ARTH 443. From the Rococo to Neo-classicism, major developments in painting, architecture, and the landscape in eighteenth-century France, England, Italy, Spain, and Germany.

ARTH 345 Nineteenth-Century European Art to 1850 (3) Formerly ARTH 445. The major trends from Neo-Classicism to Romanticism in painting, sculpture and architecture in Europe.

ARTH 346 Nineteenth-Century European Art from 1850 (3) Formerly ARTH 446. The major trends from Realism through Impressionism to Symbolism and Art Nouveau, in painting, sculpture, and architecture.

ARTH 350 Twentieth-Century Art to 1945 (3) Formerly ARTH 455. Painting, sculpture and architecture in Europe and America from the late nineteenth century to the end of World War II.

ARTH 351 Twentieth Century Art from 1945 (3) Formerly ARTH 456. Painting, sculpture and architecture in Europe and America from 1945 to the present.

ARTH 360 History of American Art to 1876 (3) Formerly ARTH 453. Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

ARTH 361 American Art since 1876 (3) Formerly ARTH 460. Painting, sculpture, architecture, and the decorative arts in North America after 1876.

ARTH 370 Latin American Art and Archaeology before 1500 (3) Formerly ARTH 470. Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

ARTH 371 Latin American Art and Archaeology after 1500 (3) Formerly ARTH 471. The effect of mingling European visual ideas with pre-Hispanic traditions. The formation of Latin American colonial art. How native American people transformed European ideas and forms.

ARTH 375 Ancient Art and Archaeology of Africa (3) Formerly ARTH 475. Art of the African continent from rock art through the nineteenth century. The cultural meaning of painting, sculpture, architecture, and artifacts from major archaeological sites.

ARTH 376 Living Art of Africa (3) Formerly ARTH 476. Art styles among the segmentary, centralised and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

ARTH 378 Special Topics for Honors Students (3) Prerequisites: admission to art history honors and permission of department. For ARTH majors only. Repeatable to 6 credits. Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.

ARTH 384 Art of Japan (3) Formerly ARTH 395. A chronological survey of Japanese painting, sculpture, architecture, and the applied arts.

ARTH 385 Art of China (3) Formerly ARTH 390. A chronological survey of Chinese painting, sculpture, and the applied arts.

ARTH 389 Special Topics in Art History and Archaeology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARTH 407 Art and Archaeology of Mosaics (3) Formerly ARTS 110. Media and related techniques to produce and study mosaics. Formerly ARTH 484. An examination of the theories, methods, and practices of New and Old World archaeology.

ARTH 408 Colloquium in Art History (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Colloquium to investigate a specific topic in depth.

ARTH 489 Special Topics in Art History (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

ARTH 494 Archaeological Theories, Methods, and Practice (3) Formerly ARTH 494. A survey of the theories, methods, and practices of New and Old World archaeology.

ARTH 496 Methods of Art History and Archaeology (3) Prerequisite: permission of department. For ARTH majors only. Methods of research and criticism applied to typical art-historical archaeological problems, familiarizing the student with bibliography and other research tools. Introduction to the history and philosophy of art history, and some of the principal theories, encouraging methodological debates within the discipline. Course for majors who intend to go on to graduate school.

ARTH 498 Directed Studies in Art History I (2-3) Prerequisite: permission of department. Repeatable if content differs. Junior standing.

ARTH 499 Honors Thesis (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

ARTT — Art Studio

ARTT 100 Two Dimensional Art Fundamentals (3) Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: ARTT 100, ARTS 100, DESN 101, or APSD 101. Formerly ARTH 100. Principles and elements of pictorial space examined through the manipulation and organization of various materials.

ARTT 110 Elements of Drawing I (3) Six hours of laboratory per week. Formerly ARTS 110. Media and related techniques to depict still-life, figure and nature.

ARTT 150 Introduction to Art Theory (3) Examination of contemporary art; review of global, philosophic and critical positions by the examination of works of art.

ARTT 200 Three Dimensional Art Fundamentals (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ARTT 100. Credit will be granted for only one of the following: ARTT 200, ARTS 200, DESN 102, or APSD 102. Formerly ARTH 200. Three-dimensional form and space examined through the manipulation and organization of various materials.

ARTT 208 Intermediate Special Topics in Art (3) Six hours of laboratory per week. Prerequisites: ARTT 110, and ARTT 200. Repeatable to 6 credits if content differs. Formerly ARTS 208. Development of student's work on an intermediate studio level within the context of a special topic.
ARTT 210 Elements of Drawing II (3) Six hours of laboratory per week. Prerequisite: ARTT 200. Formerly ARTS 210. Continuation of ARTT 110 with additional emphasis on pictorial space.

ARTT 320 Elements of Painting (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 320. Basic tools and language of painting.

ARTT 330 Elements of Sculpture: Metal Casting (3) Six hours of laboratory per week. Prerequisite: ARTT 210; and ARTT 210. Formerly ARTS 330. Basic sculptural techniques and processes related to metal casting.

ARTT 331 Elements of Sculpture: Steel (3) Six hours of laboratory per week. Prerequisite: ARTT 200; and ARTT 210. Formerly ARTS 331. Basic sculptural techniques and processes using steel and related materials.

ARTT 333 Elements of Sculpture: Wood and Mixed Media (3) Six hours of laboratory per week. Prerequisite: ARTT 200; and ARTT 210. Basic sculptural techniques and processes using wood and mixed media.

ARTT 344 Elements of Printmaking: Lithography (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 344. Basic techniques and processes related to lithography.

ARTT 345 Elements of Printmaking: Woodcut and Relief (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 345. Basic techniques and processes related to etching, aquatint, and drypoint.

ARTT 346 Elements of Printmaking: Collagraphy (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 346. Basic techniques and processes related to collagraph printing.

ARTT 347 Elements of Printmaking: Screen Printing (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 347. Basic techniques and processes related to serigraphy and silkscreen printing.

ARTT 348 Elements of Printmaking: Intaglio (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 348. Basic techniques and processes related to etching, aquatint, and drypoint printing.

ARTT 350 Elements of Design: Three Dimensional Graphics (3) Five hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 350. Principles of design and processes related to three-dimensional objects and architectural environments. Presentations include scale drawings, scale models, and real-size mock-ups.

ARTT 353 Elements of Photography (3) Prerequisites: ARTT 100 and ARTT 110 or permission of department. Introduction to black-and-white photography. Basic technical and aesthetic vocabulary, camera mechanics and darkroom techniques. Introduction to the photographic message and meaning in both fine art and commercial photography.

ARTT 354 Elements of Computer Graphics (3) Six hours of laboratory per week. Prerequisites: (ARTT 100 and ARTT 110) or permission of department. Introduction to computer graphics, imaging, illustration, and mixed media.

ARTT 404 Experiments in Visual Processes (3) Six hours of laboratory per week. Prerequisite: ARTT 220 or ARTT 330 or ARTT 340. Formerly ARTS 404. Investigation and execution of process oriented art. Group and individual experimental projects.

ARTT 408H Honors Seminar (3) Prerequisites: Acceptance into Export Program, ARTT 400-409H, and 418H electives, and permission of department. Team-taught seminar focusing on relationship between student’s work and the theoretical context of contemporary art.

ARTT 418 Drawing (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Repeatable to 12 credits. Formerly ARTS 418. Original compositions from the figure and nature, supplemented by problems of personal and expressive drawing.

ARTT 428 Painting (3) Six hours of laboratory per week. Prerequisite: ARTT 320. Repeatable to 12 credits. Formerly ARTS 428. Continuation of 300-level elements of sculpture courses with emphasis on developing personal directions in chosen media.

ARTT 432 Elements of Sculpture: Stone (3) Six hours of laboratory per week. Prerequisites: ARTT 200; and ARTT 210. Formerly ARTS 322. Basic techniques and processes related to stone carving, cutting and welding, arc welding, hot forging.

ARTT 433 Elements of Sculpture: Metal Casting (3) Six hours of laboratory per week. Prerequisite: ARTT 210; and ARTT 210. Formerly ARTS 333. Examine sculptural concepts through a variety of materials, basic techniques and processes related to building and fabrication.

ARTT 435 Elements of Sculpture: Steel (3) Six hours of laboratory per week. Prerequisite: ARTT 200; and ARTT 210. Formerly ARTS 335. Basic sculptural techniques and processes using steel and related materials.

ARTT 436 Elements of Sculpture: Wood and Mixed Media (3) Six hours of laboratory per week. Prerequisite: ARTT 200; and ARTT 210. Basic sculptural techniques and processes using wood and mixed media.

ARTT 448H Honors Seminar (3) Prerequisites: Acceptance into Export Program, ARTT 400-409H, and 418H electives, and permission of department. Team-taught seminar focusing on relationship between student’s work and the theoretical context of contemporary art.

ASTR 499 Advanced Special Topics in Art (3) Six hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly ARTS 499. Development of student’s work on an advanced studio level within the context of a special topic.

ARTT 498 Directed Studies in Studio Art (2-3) Prerequisite: permission of department. For advanced students. Repeatable if content differs. Formerly ARTS 498.

ASTR 100 Introduction to Astronomy (3) Credit for ASTR 100 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. Credit will be granted for only one of the following: ASTR 100 or ASTR 120. An introduction to astronomy, especially appropriate for non-science students. Sun, moon, planets, stars and nebulae, galaxies, evolution.

ASTR 101 General Astronomy (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Credit for ASTR 101 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. Credit will be granted for only one of the following: ASTR 100 or ASTR 120. An introduction to astronomy, especially appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of telescopes, computer simulations and observing sessions if weather permits.

ASTR 111 Observational Laboratory (5) Two hours of laboratory per week. Corequisite: ASTR 100. Single evening laboratory projects plus semester-long observing projects in both visual and photographic observing features; the night-time sky; changing positions of sun, moon, and planets; stellar spectra; observation of stars and nebulae in our galaxy.

ASTR 120 Introductory Astrophysics - Solar System (3) Pre-requisite: MATH 115. Not open to students who have completed ASTR 100, ASTR 101 or ASTR 200. Credit will be granted for only one of the following: ASTR 100 or ASTR 101 or ASTR 120 or ASTR 200. For students majoring in astronomy or with a strong interest in science. Topics include development of planetary systems, electromagnetic radiation, telescopes as well as constituents and origin of the solar system (planets, satellites, comets, asteroids, meteoroids, etc.).

ASTR 121 Introductory Astronomy II - Stars and Beyond (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: MATH 115 and ASTR 120, or permission of department. Not open to students who have completed ASTR 100 or ASTR 121. Credit will be granted for only one of the following: ASTR 100 or ASTR 121 or ASTR 200. For science, mathematics, computer science and engineering majors only. Qualitative study of astronomy including exploration of the solar system, types of stars and galaxies observed. Mostly stresses analysis using algebra. Some use of calculus for celestial mechanics and other dynamical problems.

ASTR 220 Collisions in Space (3) Not open to astronomy majors or with a strong interest in science. Application of scientific method to the study of collisions in space. Impact cratering on planets and satellites. Possible implications for the Earth. Interactions between stars and galaxies. Possible effects due to supermassive black holes. Events like the 1994 comet crash on Jupiter and data from the Hubble Space Telescope will be highlighted.

ASTR 288 Special Projects in Astronomy (1-3) Prerequisite: permission of department. Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under faculty supervision.

ARTS 300 Stars and Stellar Systems (3) Prerequisites: ASTR 100 or ASTR 101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-physics-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.
ASTR 310 Optical Astronomy Techniques (3) Three hours of lecture or discussion per week. Prerequisite: PHYS 273 and PHYS 274 or PHYS 263 and PHYS 263A or permission of department. For ASTR majors only. Introduction to current observational techniques, with emphasis on the use of electronic equipment. Effects of light, ultraviolet and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, electronic instruments. Effects of the atmosphere. Practical work at the observatory using a CCD camera. Some nighttime observing sessions.

ASTR 315 Navigation (3) Prerequisite: plane trigonometry. Theory and practice of navigation without landmarks, with emphasis on celestial navigation and some discussion of electronic navigation. Spherical trigonometry as necessary. Extensive practical work at times to be arranged.

ASTR 320 Theoretical Astrophysics (3) Prerequisites: ASTR 121 or ASTR 200; PHYS 273 or PHYS 263; or permission of department. Application of selected physics concepts in an astrophysical context. Topics would include gravity (Keplerian motion, Virial theorem, Roche limit, dynamical friction), gas dynamics, stellar atmospheres, stars, galaxies, dark matter, active galaxies, quasars, and the future of the universe.

ASTR 330 Solar-System Astronomy (3) Prerequisites: ASTR 100 or ASTR 101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-physics science majors. The structure of planets and of their atmospheres, the nature of the planets, the nature of the solar system, and various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.

ASTR 340 Origin of the Universe (3) Prerequisites: ASTR 100 or ASTR 101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. A study of our progress of knowledge about the universe. Topics include: early cosmological models, geocentric model, heliocentric model, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.

ASTR 350 Astronomy and Astrophysics (4) Prerequisites: ASTR 200 and PHYS 272 or PHYS 262 or PHYS 142 or permission of department. Corequisites: PHYS 273 or PHYS 263. Topics in astronomy with emphasis on physical concepts. Star clusters, stellar evolution and collapsed objects, ionized nebulae, molecular clouds and star formation, stellar dynamics, cosmology.

ASTR 380 Life in the Universe (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ASTR 100 or ASTR 101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. A study of our progress of knowledge about the universe. Topics include: early cosmological models, geocentric model, heliocentric model, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.

ASTR 398 Special Topics in Astronomy (3) Prerequisite: junior standing. Three two-hour laboratory periods per week. Open to 6 credits; catalog, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, radio detectors.

ASTR 420 Introduction to Galactic Research (3) Prerequisite: PHYS 272 and ASTR 350 or equivalent or permission of department. Methods of galactic research, stellar motions, clusters of stars, evolution of the galaxy, study of our own and nearby galaxies.

ASTR 430 The Solar System (3) Prerequisite: MATH 246 and PHYS 273 and PHYS 274 or PHYS 263 and PHYS 263A or permission of department. The structure of planetary atmospheres, remote sensing of planetary surfaces, interior structure of planets. Structure of comets. Basic discussions of astroids, satellite systems, and solar system evolution. Intended for students majoring in any of the physical sciences.

ASTR 440 Introduction to Extra-Galactic Astronomy (3) Prerequisite: PHYS 273 or PHYS 274 or PHYS 263 or permission of department. The structure of planetary atmospheres, remote sensing of planetary surfaces, interior structure of planets. Structure of comets. Basic discussions of astroids, satellite systems, and solar system evolution. Intended for students majoring in any of the physical sciences.

ASTR 450 Orbital Dynamics (3) Prerequisite: permission of department. Advanced undergraduate course considering the central force field, gravitational and non-gravitational forces, the two-body and three-body problems, orbital perturbations, theories in the solar system, chaos. Intended for students majoring in any of the physical sciences.

ASTR 498 Special Problems in Astronomy (1-6) Prerequisite: major in physics or astronomy or permission of department. Research or special study. Credit awarded to work done.

BCHM 261 Elements of Biochemistry (3) Prerequisite: CHEM 104 or CHEM 233 or CHEM 235. Not open to students who have completed BCHM 461. For undergraduate students who desire a broad knowledge of biochemistry, not majoring in a science major. Designed primarily for non-physical science majors. The structure of complex molecules of biological importance.

BCHM 361 Origins of Biochemistry (3) Prerequisite: any distributive studies course in chemistry or any of the biological sciences. The development of our understanding of life processes. Emphasis on a consideration of ideas and findings that have led to diseases, hormonal mechanisms, pharmacological, molecular and genetic engineering. Intended for non-science majors.

BCHM 399 Undergraduate Research in Biochemistry (1-3) Prerequisite: permission of department. One semester in biochemistry research conducted under the supervision of a faculty member.

BCHM 461 Biochemistry I (3) Prerequisite: A grade of C or better in CHEM 243 or CHEM 247. The "C" or better in the prerequisites is required for Life Science majors.

BCHM 462 Biochemistry II (3) Prerequisite: A grade of C or better in BCHM 461 or BCHM 461A. The "C" or better in the prerequisites is required for Life Science majors. A continuation of BCHM 461.

BCHM 463 Biochemistry of Physiology (3) Prerequisite: A grade of C or better in CHEM 243 or CHEM 247. The "C" or better in the prerequisites is required for Life Science majors.

BCHM 464 Biochemistry Laboratory (3) One hour of lecture and five hours of laboratory per week. Corequisite: BCHM 462. For BCHM and CHEM majors only.

BCHM 465 Biochemistry III (3) Prerequisite: A grade of C or better in BCHM 461 or BCHM 461A. The "C" or better in the prerequisites is required for Life Science majors. Recommended: BCHM 462. An advanced course in biochemistry.

BIOM — Biometrics

BIOM 301 Introduction to Biometrics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH 115. Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications and interpretation of statistical results.

BIOM 402 Statistics for Human and Veterinary Medicine (3) Prerequisite: BIOM 301, PSYC 200, or STAT 464. Junior standing. Not open to students who have completed BIOM 401 or BIOM 461 or BIOM 461A. A continuation of BIOM 301 Introduction to Biometrics. Data analysis, sampling, hypothesis testing, regression, correlation, variance, multiple 2x2 tables, prevention and control of disease.

BIOM 404 Computer Applications in Biometrics (1) Two hours of lecture per week. Prerequisite: BIOM 402 or STAT 464. An introduction to computer applications for data analysis. This is equivalent to the computer lab of 601 and is required for BIOM 403 and BIOM 402 and is required to go directly into BIOM 602.

BMGT — Business and Management

BMGT 100 Introduction to Business Computing (3) Two hours of lecture and one hour of laboratory per week. Not open to computer science students. Sophomore standing. For BMGT 220. Basic theory and techniques for only one of the following: BMGT 210 or BMGT 301. Basic literacy course using common business computer-based applications. Consider the role of information technology in the modern workplace, as well as the use of computer applications in problem solving.

BMGT 210 Basic Accounting (3) Prerequisite: Restricted to Non-BMGT Majors only. Sophomore standing. Credit will be given for only one of the following: BMGT 210 or BMGT 220. Basic Accounting for Non-Business Majors; combines principles of financial and managerial accounting. Not open to BMGT credit will not be given for both BMGT 210 and either BMGT 220 or BMGT 221.

BMGT 220 Principles of Accounting I (3) Sophomore standing. Basic theory and techniques of contemporary financial accounting. Inclusions include: financial and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

BMGT 221 Principles of Accounting II (3) Prerequisite: BMGT 220. Junior standing. Credit will be awarded for only one of the following: BMGT 221 or BMGT 220. Principles of managerial accounting.Nicely the topics of income tax and international accounting.

BMGT 230 Business Statistics (3) Prerequisite: MATH 113 or MATH 115 or placement in MATH 220 or higher. Not open to students who have completed BMGT 231, ENEE 324, or STAT 400. Business Statistics will be given by: AEC 484, BIOM 301, BMGT 230, CNEC 400, ECON 321, EDM 455, GEG 305, GYP 422, PSYC 200, SOCY 201, URS 350, BMGT 344. An introductory course in statistical concepts, including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression, decision theory and the application of these concepts to problem solving in business and management. This course does not meet requirements for management science and statistics majors.

BMGT 231 Statistical Models For Business (3) Prerequisite: MATH 141 or permission of department. Required for management science and statistics and decision and information sciences majors, or permission of the following: BMGT 231, ENEE 324, or STAT 400. An introductory course in statistical concepts, including probability from a naive set theory approach, random variables and their properties, and the probability distributions of selected discrete and continuous random variables. The concepts of sampling, statistical inference, and hypothesis testing are illustrated. An introduction to estimation and hypothesis testing are included, as are brief surveys of the regression and analysis of variance models.

BMGT 261 Entrepreneurship: Starting and Managing the Entrepreneurial Venture (3) 3 semester hours. Sophomore standing. Not open to students who have completed BMGT 461. Credit will be granted for only one of the following: BMGT 261 or BMGT 461. Focuses on the processes of developing a new business opportunity and opening a startup company. Specific areas include: identifying opportunities, conducting feasibility studies, elements of a business plan, evaluating financing alternatives, selecting a legal form of organization, and building an entrepreneurial team.
BMGT 290 Methods for Measuring Quality (3) Prerequisite: BMGT 100. An introduction to ENES 380. Provides engineering and business students an understanding of the need and use of measurement techniques that lead to continuous improvement. The second course of four courses in total quality.

BMGT 302 Business Computer Application Programming (3) Prerequisite: BMGT 201 or CMSC 102 or CMSC 103 or permission of department. Not open to computer science students. For BMGT majors only. Considers characteristics of business data programming and common software development processes and practices. Covers the designing, writing, debugging, and testing of an efficient, structured program in Visual Basic.

BMGT 305 Survey of Business Information Systems and Technology (3) For decision and information science majors only. Not open to computer science students. 55 semester hours. Internship course for the decision and information science major. Covers the components of modern business information systems, as well as the consequences of information technology on society and the economy.

BMGT 310 Intermediate Accounting I (3) Prerequisite: BMGT 221. Comprehensive analysis of financial topics related to financial statement preparation and external reporting.

BMGT 315 Intermediate Accounting II (3) Prerequisite: BMGT 310. Continuation of BMGT 310.

BMGT 321 Cost Accounting (3) Prerequisite: BMGT 221. A study of the basic concepts of cost behavior, standard cost systems, responsibility accounting and relevant costs for decision making.

BMGT 323 Income Tax Accounting (3) Prerequisite: BMGT 221. Introduction to Federal income taxation of individuals. Examination of tax laws by use of illustrative examples and problems.

BMGT 326 Accounting Systems (3) Prerequisite: BMGT 201 and BMGT 310. A study of accounting systems and computer and communications technology. This course is restricted to accounting majors with 74 semester hours completed. All others must have authorization.

BMGT 332 Operations Research For Management Decisions (3) Prerequisite: BMGT 230. Surveys the philosophy, techniques, and applications of operations research to managerial decision making. The course is designed primarily for students not majoring in management science or statistics. Techniques covered include linear programming, transportation and assignment models, Markov processes, inventory and queuing models. Emphasis is placed on formulating and solving decision problems in the functional areas of management.

BMGT 340 Business Finance (3) Prerequisites: BMGT 221; and ECON 200 or ECON 205. An introduction to the concepts, development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution, and internal marketing to employees.

BMGT 351 Direct Marketing (3) Three hours of lecture per week. Prerequisite: BMGT 350. For BMGT majors only. Planning, development, implementation, and analysis of marketing programs in the consumer, business-to-business, and international markets. Advantages and disadvantages of direct marketing, including the problems of service and nonprofit organizations. Provides an overview of all the concepts in marketing, including relationships marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution, and internal marketing to employees.

BMGT 351 Retail Management (3) Prerequisites: BMGT 220; and BMGT 350. Introduction to retail management concepts, strategy, store and nonstore (catalog, internet) retailing. Evaluation of how environmental trends in the consumer market, competition, and technology, affect retail strategy in the U.S. and global market.

BMGT 357 Retailing and Marketing Internship (3-6) Prerequisites: BMGT 350 and permission of department. For BMGT majors only. Supervised work experience with a firm through the internship stage. Topics include: current trends, concepts learned in marketing classes and analyze the firm's organizational structure, environment, and marketing strategy.

BMGT 360 Human Resource Management (3) The basic course in human resource management includes manpower planning, recruitment, the interaction of compensation, benefits, and appraisal of employees. Explores the impact of scientific management and unions on these functions.

BMGT 362 Labor Relations (3) A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation, and conciliation; collective bargaining, work-agreements, strikes, boycotts, lockouts, company unions, employee representation, and injunctions.

BMGT 364 Management and Organization Theory (3) The development of management and organization theory, nature of the management function, and its future development. The role of the manager as an organizer and director, the communication process, goals and responsibilities.

BMGT 365 E-Business Entrepreneurial Venture (3) Prerequisite: ECON 250. A study of the financial tools to build an analytical framework for determining financial need over various stages of growth, from startup through the growth stage. Topics include: cash management, "bootstrapping", private placement, bank financing, valuation concepts, venture capital, "angel" financing, and initial public offerings.

BMGT 366 Growth Strategies for Emerging Companies (3) A study of the development of strategies to support growth. Focus on successful startups companies transition from the early stages of entrepreneurship to a position of profitability. The emphasis will be on how technology, competition, and green issues affect startups. Also, the emphasis on how high technology businesses make this transition by changing their strategic focus and management style.

BMGT 367 Career Search Strategies in Business (1) One hour of lecture and one hour of laboratory per week. Junior standing. Focuses on how successful startup companies transition from the early stages of entrepreneurship to a position of profitability. The emphasis will be on how technology, competition, and green issues affect startups.

BMGT 370 Introduction to Transportation Management (3) Prerequisite: BMGT 350; or ECON 250. An introduction to the transportation and logistics industry. The course provides an overview of the transportation sector, including providers, users and government agencies. Examinations contemporary public policy issues, such as deregulation, along with traditional transportation services and distribution.

BMGT 372 Introduction to Logistics Management (3) The study of logistics functions of business involved in the movement and storage of supplies, work-in-progress and finished goods. The trade-offs between cost and service and the purchase and supply of raw materials, the warehousing and control of inventory, industrial packaging, materials handling within warehouses, and the distribution of finished goods to customers required to minimize costs, maximize profits or increase customer service levels.

BMGT 373 Logistics and Transportation Internship (3) Prerequisites: BMGT 370 and BMGT 372. Internship course for the transportation and logistics management program. Students will be expected to relate coursework to material we work experience in an analysis of a firm's operations.


BMGT 380 Business Law II (3) Prerequisite: BMGT 380 or permission of department. An introduction to governmental regulations and the law of business and the law of business. Topics include: sales, commercial paper, secured transactions, bankruptcy laws. The law of real property, landlord and tenant relationships and decedents' estates.

BMGT 385 Production Management (3) Studies the operations management of the manufacturing enterprise with emphasis on the economics of production. Introduces analytical method so that the broad problem areas of system design, operation and control can be based upon the analytical method.

BMGT 390 Competing on Quality in a Global Economy (3) Prerequisites: BMGT 290 or ENES 380. A study of the domestic and foreign environmental factors affecting competition in U.S. and international manufacturing firms. The course also covers the administrative aspects of international marketing, finance and management.

BMGT 393 Real Estate Principles (3) Prerequisites: ECON 200; or ECON 205. The nature and uses of real estate, real estate legal, housekeeping, construction problems and home ownership, city planning, and public control and ownership of real estate.

BMGT 398 Individual Study in Business and Management (1-3) Prerequisite: permission of department. Repeatable to 6 credits.

BMGT 402 Database Systems (3) Prerequisite: BMGT 365 or equivalent. Introduction to basic concepts of database management systems. Relational databases, query languages and SQL will be covered. File-processing techniques are examined.

BMGT 403 Systems Analysis and Design (3) Prerequisite: BMGT 365 or equivalent. Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of data-bases, performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.

BMGT 405 Business Telecommunications (3) Prerequisite: BMGT 365 or equivalent. Concepts of business data communications and data processing. Application of these ideas in computer networks, including basic principles of telecommunications technology: packet switching technology, data management in distributed database systems and management of the technical and functional components of telecommunications technologies.

BMGT 406 Electronic Commerce Application Development (3) Prerequisite: BMGT 365. For BMGT majors only. Develops understanding of the fundamental principles of usability as they apply to electronic commerce applications. Aspects of web site environment are explored. Also, the design of usable business web sites using current tools and techniques.

BMGT 407 Info Systems Projects (3) Prerequisite: 12 hours of information systems. For decision and information sciences majors. Senior standing. Senior capstone course for the information system major. The course requires the study of decision and information sciences major. Collected knowledge from the DIS courses and application to significant problems of importance to society. Senior capstone course for the study of the domestic and foreign environmental factors affecting competition in U.S. and international manufacturing firms. The course also covers the administrative aspects of international marketing, finance and management.

BMGT 410 Fund Accounting (3) Prerequisite: BMGT 310. An introduction to the fund-based theory and practice of accounting as applied to governmental entities and not-for-profit associations.

BMGT 411 Ethics and Professionalism in Accounting (3) Prerequisite: BMGT 311. For accounting majors only. Senior standing. Analysis and discussion of issues relating to ethics and professionalism in accounting.

BMGT 417 Advanced Tax Accounting (3) Prerequisites: BMGT 311; and BMGT 323. Federal taxation of corporations, partnerships, trusts, fiduciaries, and estates. Tools and techniques of tax research for compliance and planning.

BMGT 420 Undergraduate Accounting Seminar (3) Prerequisite: BMGT 311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.

BMGT 422 Auditing Theory and Practice (3) Prerequisite: BMGT 311. A study of the independent accountant's attestation function, generally accepted auditing standards, compliance and substantive tests, and report forms and opinions.

BMGT 424 Advanced Accounting (3) Prerequisite: BMGT 311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.
BMGT 427 Advanced Auditing Theory and Practice (3)
Prerequisite: BMGT 422. An examination and in-depth study of special auditing topics such as statistical sampling, professional ethics, EDP auditing, legal liability, and SEC accounting.

BMGT 430 Linear Statistical Models in Business (3)
Prerequisite: BMGT 230 or BMGT 231 or permission of department. Model building involving an intensive study of the general linear statistical model and the applications of this model to business problems. The model is derived in matrix form and this form is used to analyze both the regression and ANOVA facilities of the linear model.

BMGT 434 Introduction to Optimization Theory (3)
Prerequisite: MATH 220; or permission of department. Primarily for students majoring in management science and statistics. Linear programming, postoptimality analysis, network analysis, dynamic programming, nonlinear programming and single variable minimization.

BMGT 435 Introduction to Applied Probability Models (3)
Prerequisite: BMGT 231 or permission of department. Statistical models in management. Review of probability theory, Monte Carlo methods, discrete event simulation, Markov chains, queueing analysis, other topics depending upon time. Guess, a high-level computer language, will be introduced in class and the class and students will carry out various exercises using this language.

BMGT 440 Financial Management (3)
Prerequisite: BMGT 340. Analysis and discussion of cases and readings relating to financial decision making. The applications of the decision making concepts to the solution of financial problems is emphasized.

BMGT 443 Security Analysis and Valuation (3)
Prerequisite: BMGT 343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation, and selection of securities, especially common stock.

BMGT 444 Futures and Options (3)
Prerequisite: BMGT 343. The institutional setting and economic implications underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, interest rate options, in futures markets, and stock and commodity options.

BMGT 445 Commercial Bank Management (3)
Prerequisites: BMGT 340; and ECON 430. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income, and source of funds. Bank objectives, functions, policies, organization, structure, services, and regulation are examined.

BMGT 446 International Finance (3)
Prerequisite: BMGT 340. Financial management from the perspective of the multinational corporation. Topics covered include the organization of foreign operations, financing of foreign subsidiaries, foreign direct investment, and international capital markets. International capital budgeting, financing foreign trade and designing a global financing strategy. Analysis of the various marketing courses using the fundamentals of strategic marketing planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

BMGT 450 Integrated Marketing Communications (3)
Prerequisite: BMGT 350. Formerly BMGT 354. The study of the decision-making processes of the buyer. Emphasis is placed on consumer behavior as a planning tool to communicate with customers and meet marketing goals. Concepts, strategies, and current practice to provide management orientation.

BMGT 451 Consumer Analysis (3)
Prerequisite: BMGT 350; PSYC 101; and PSYC 221. Not open to students who have completed CNEC 437. Credit will be granted for only one of BMGT 451 or BMGT 450. Formerly BMGT 354. In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasizes strategic planning to effectively use these promotional tools to communicate with customers and meet marketing goals. Concepts, strategies, and current practice to provide management orientation.

BMGT 452 Marketing Research Methods (3)
Prerequisites: BMGT 360; and BMGT 370. Evolution of marketing decision making through exploratory, descriptive, and causal research. Develops student skills in evaluating and writing marketing research proposals, interpreting and analyzing subsequent reports, and appraising their usefulness to managers; designing studies, including selection of data collection instruments and techniques, sampling frame, sample size, collection and analysis of data, and reporting the results.

BMGT 453 Industrial Marketing (3)
Prerequisites: BMGT 350 plus one other marketing course. The industrial and business services marketing system is considered rather than the household or ultimate consumer sector. Industrial products range from raw materials and supplies to the major equipment in a business or service operation. Topics include: product planning and introduction, marketing analysis and forecasting, channels, pricing, final sales force management, advertising, marketing policies, and government relations. Particular attention is given to industrial, business and institutional buying policies and practice and to the analysis of buyer behavior.

BMGT 454 International Marketing (3)
Prerequisites: BMGT 350 plus one other marketing course. Marketing functions from the international executive's viewpoint, including coverage of international marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications, and cost analysis. Consideration is given to the cultural, legal, financial, and organizational aspects of international marketing.

BMGT 455 Sales Management (3)
Prerequisites: BMGT 350 and BMGT 343 (or 400 level finance elective); and core requirements in business and management; prerequisite for only one of the following: BMGT 451 or CNEC 437. In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasis is placed on consumer behavior as a planning tool to communicate with customers and meet marketing goals. Concepts, strategies, and current practice to provide management orientation.

BMGT 456 Business Plan For The New Venture (3)
Prerequisite: BMGT 360. Recommended: BMGT 370. The study of the importance of total logistics costs for U.S. and international firms. The study of the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

BMGT 457 Marketing Policies and Strategies (3)
Prerequisite: BMGT 451. Corequisite: BMGT 452. This course introduces a variety of marketing policies and strategies to the various marketing courses using the fundamentals of strategic marketing planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

BMGT 460 Human Resource Management: Analysis and Problems (3)
Prerequisite: BMGT 360. Recommended: BMGT 230. Research findings, special readings, case analysis, simulation, and field research are used to develop a better understanding of personnel problems, alternative solutions and their practical ramifications.

BMGT 461 Entrepreneurship (3)
Prerequisite: BMGT 360. Formerly BMGT 370. Credit will be granted for only one of BMGT 461 or BMGT 370. Analysis of the various marketing courses using the fundamentals of strategic marketing planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

BMGT 462 Employment Law for Business (3)
Prerequisite: BMGT 720. The course is restricted to BMGT majors with 720 hours completed. Legal framework of industrial relations with special emphasis on employment discrimination, i.e., wrongful termination, sex discrimination, sexual harassment, age discrimination, disability, etc.

BMGT 464 Organizational Behavior (3)
Prerequisite: BMGT 364. An examination of research and theory concerning the behavior of individuals within organizations, with emphasis on its impact on the behavior of organizational members. Topics covered include work group behavior, supervisory behavior, intergroup relations, employee goals and attitudes, communication patterns, organizational change, and organizational goals and design.

BMGT 465 Business Plan For The New Venture (3)
Prerequisite: BMGT 365 and BMGT 366. 3 semester hours. Senior standing. Course focuses on the development and implementation of business plans for new ventures. Topics include: uses of the business plan, plan methodology and format, information sources, assessment of opportunity and financing requirements, analysis of venture, accounting capital, financial planning, and legal issues.

BMGT 476 Applied Computer Models in Logistics and Transportation Management (3)
Prerequisites: BMGT 301 and BMGT 370 and BMGT 372. Introduction to the expanding base of computer software in the logistics and transportation fields. Applications include inventory control, location decisions, and vehicle routing.

BMGT 477 International Logistics and Transportation Management (3)
Prerequisites: BMGT 370 and BMGT 372. This course studies the importance of transportation in meeting the competitive needs of U.S. industries attempting to compete in a global economy. Coverage of the structure, service, pricing, and competitive strategies of companies engaged in transporting products and services. Topics covered include truck sizes and weights on interstate highways; and determination of effective policies for transportation safety and labor relations. The transportation infrastructure in the United States and the role of ports and other transportation modes is studied. The effect of other countries are presented for international comparisons.

BMGT 478 Public Utilities (3)
Prerequisite: ECON 200; or ECON 205. A critical look at the pricing and regulation of U.S. and international firms. The study of the importance of total logistics costs for U.S. and international firms. The study of the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

BMGT 480 Legal Environment of Business (3)
Prerequisites: BMGT 301 and BMGT 370 and BMGT 372. Course focuses on the development and implementation of business plans for new ventures. Topics include: uses of the business plan, plan methodology and format, information sources, assessment of opportunity and financing requirements, analysis of venture, accounting capital, financial planning, and legal issues.

BMGT 481 Utility Companies (3)
Prerequisite: ECON 200; or ECON 205. Using the regulated industries as a specific example, attention is focused on broad and general problems in such diverse fields as constitutional law, administrative law, public administration, government control of business, and economic theory. The problems of regulation and de-regulation, taxation, finance, engineering, and management.
170 Approved Courses

BMTG 484 Electronic Marketing (3) Prerequisite: BMTG 350. For BMGT students only. An examination of the process of developing, implementing, and analyzing strategies for successfully marketing a variety of existing and potential products and services. Special attention devoted to the tools and techniques unique to the electronic media.

BMTG 486 Total Quality Management (3) Prerequisite: BMTG 230 or equivalent. Total Quality Management and the synergy required between functions to obtain the customer's quality demands. Use of tools which are mandatory in any successful quality effort.

BMTG 490 The Total Quality Practicum (3) Prerequisite: BMTG 390 or ENES 390. Also offered as ENES 490. Capstone course for the four course total quality program. Based on a major project undertaken by student teams in an industrial environment emphasizing integrative aspects of total quality. Each project will be supervised by a joint faculty/industry team with different areas of expertise. Requires extensive outside-class work.

BMTG 493 Honors Study (3) Prerequisite: permission of department. First semester of the senior year. The course is designed for honors students who have elected to conduct an intensive study (independent or group). The student will work under direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of student work is of a scope and intensity deserving of a major project undertaken by student teams in an industrial environment. Each project will be supervised by a joint faculty/industry team with different areas of expertise. Requires extensive outside-class work.

BMTG 494 Honors Study (3) Prerequisite: BMTG 493, and continued permission of the faculty advisor and department. Second semester of the senior year. The student shall continue and complete the research initiated the same year. Course not acceptable toward major requirements in the College of Life Sciences.

BMTG 495 Business Policies (3) Prerequisites: BMTG 340; and BMTG 350; and BMTG 364. 100 semester hours. For BMGT majors only. A case study course where students apply what they have learned of general management principles and their specialized functional applications to the overall management function in the enterprise.

BMTG 496 Business Ethics and Society (3) Prerequisite: one course in Business Administration and permission of department. Semester of departmental emphasis. Designed to meet the changing needs and interests of students and faculty.

BSCI — Biological Sciences Program

BSCI 103 The World of Biology (4) Three hours of lecture and three hours of laboratory per week. Formerly: BIOL 101 and BIOL 102. Credit will be granted for only one of the following: BSCI 103 or BIOL 101. Three hours of lecture and three hours of laboratory per week. Prerequisite: BIOL 101 or BIOL 102. A basic course in biology which will provide the non-science major. Major themes include molecular biology, cell biology, evolution and organismal biology. Relevance of study of biology to modern human life will be emphasized. Course not acceptable toward degree in College of Life Sciences.

BSCI 105 Principles of Biology I (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: placement in MATN 110 or higher. For science majors. Credit will be granted for only one of the following: BSCI 103 or BIOL 101 or BSCI 105/BIOL 105. Formerly BIOL 105. Basic principles of biology with special emphasis on cellular and molecular biology. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 106 Principles of Biology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: MATH 110 placement. For science majors. Formerly BIOL 106. Basic principles of biology with special emphasis on organismic, ecological and evolutionary biology. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 120 Insects (3) Two hours of lecture and one hour of discussion/recitation per week. Formerly ENTM 100. A survey of the major groups of insects, their natural history, and their relationships to humans and their environment. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 121 Beekeeping (2) Formerly ENTM 111. First semester. A study of the life history, behavior and seasonal activities of the honey bee. The role of the honey bee in the pollination of plants of economic importance and bee lore in literature. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 122 Microbes and Society (4) Three hours of lecture and two hours of discussion/recitation per week. Formerly: BSCI 122 or BSCI 222. Formerly MCB 122. Introduction to the historical, societal and conceptual aspects of microbial life. The purpose of the course is to make concepts about bacteria, fungi, and viruses understandable and acceptable toward major requirements in the College of Life Sciences.

BSCI 124 Plant Biology for Non-Science Students (3) For non-science majors only. Not open to students who have completed BSCI 105/BIOL 105. A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on understanding the basic structure and functions of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environments. Course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture and Natural Resources.

BSCI 125 Laboratory in Plant Biology (1) Three hours of laboratory per week. Prerequisite: BSCI 124. For non-science majors only. Formerly BSCI 101. Laboratory investigations for the non-science student into the processes and functions of plants, their evolution, adaptations and conflicting interests of and claims on the firm and its management. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 201 Human Anatomy and Physiology I (3) Three hours of lecture and three hours of laboratory per week. Prerequisite: BIOL 105 or equivalent. An anatomy or physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 202 Human Anatomy and Physiology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI 201 or permission of department. Formerly ZOOL 202. Anatomy and physiology of the cardiovascular, respiratory, immune, nervous, and endocrine systems. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 203 Life in the Oceans (3) Prerequisite: an introductory course in biology. Formerly ZOOL 111. Three hours of lecture and three hours of laboratory per week. Formerly ZOOL 101. A basic course in marine biology. The course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture and Natural Resources.

BSCI 205 Environmental Science (3) Formerly PBIO 235. Three hours of lecture and three hours of laboratory per week. Formerly ZOOL 205. An introductory overview to the biology and diversity of insects. Basic physiological, ecological and behavioral processes that underlie the activity biology. The management of pest insect populations and the consequences of the strategies used to regulate insect pests. A collection is required.

BSCI 230 Cell Biology and Physiology (3) Three hours of lecture and three hours of laboratory per week. Formerly: BSCI 106 and CHEM 103. Formerly ZOOL 211. Biochemical and physiological mechanisms underlying cellular function. Basic mechanisms which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

BSCI 258 College Park Scholars Internship (1-3) For College of Life Sciences. Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: permission of department. Formerly ENTM 205. An introductory overview to the biology and diversity of insects. Basic physiological, ecological and behavioral processes that underlie the activity biology. The management of pest insect populations and the consequences of the strategies used to regulate insect pests. A collection is required.

BSCI 279 Supplemental Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly ZOOL 299. Research or special study to complement a course taken previously which is not fully encompassing current departmental requirements. Credit according to work done.

BSCI 288 Internship (1-6) Prerequisite: permission of department. Repeatable to 12 credits if content differs. Formerly BIOL 288. An individual experience arranged by the student with the sponsorship of a faculty advisor. Course not acceptable toward major requirements. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 289 Off-Campus Internship (1-3) Prerequisite: permission of department. For LFSC majors only. Repeatable to 6 credits if content differs. Formerly BIOL 289. An individual experience arranged by the student with the sponsorship of a faculty advisor. Course not acceptable toward major requirements. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 301 Biological Issues and Scientific Evidence (3) Prerequisite: BSCI 105. Formerly ZOOL 301. Scientific inquiry in biology as exemplified by topics such as Mendelian and molecular genetics. Implied for consideration within the context of society. The use of DNA fingerprinting in court; scientific vs. alternative medicine; evolution vs. creationism. Not for biology majors. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 302 Women and Science (3) Prerequisite: one science course. Also offered as WMST 313. Credit will be granted for only one of the following: WMST 313 or BSCI 302. Formerly ZOOL 313. Participation in and contribution of women to the sciences. Influence of self-images and societal expectations on women's participation, intersection of scholarship with science. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 312 Eukaryotic Genetics Laboratory (2) Three hours of laboratory and one hour of discussion/recitation per week. Formerly: BSCI 222 or equivalent. Credit will be granted for only one of the following: BSCI 312, ZOOL 302, or BSCI 312. Formerly ZOOL 322. Experiments using lower and higher eukaryotes will be done by the students. Course will apply the genetic concepts underlying Mendelian and chromosomal theory of heredity; gene-environment interactions and the interaction of the environment with the genotype. Emphasis will be on the analysis and interpretation of data as well as clarity and completeness of the laboratory records.

BSCI 328 Special Topics in Entomology (1-4) Repeatable to 6 credits if content differs. Formerly ENTM 328. Lectures, seminar topics and other special instruction in various entomological subjects.
BSCI 329 Instructional Assistance Practicum (1-2) Prerequisite: permission of department. Service not applicable to 3 credits if content differs. Formerly ZOOL 329. Students serve as instructional assistants in selected undergraduate biology courses. Rates and responsibilities are determined by the course. Credit is course-specific basis and approved by the Director of Undergraduate Studies, Biology Department. Course not acceptable toward major requirements in the College of Life Sciences.

BSCI 338 Special Topics in Biology (1-4) Repeatable to 6 credits if content differs. Formerly ZOOL 328. Lectures, seminars, minicourses and other special instruction in various biological subjects.

BSCI 341 Introductory Plant Pathology (4) Two hours of lecture and two hours of field study per week. Prerequisites: BSCI 105 and BSCI 106. Formerly PBIO 365. An introduction to the causal agents, nature and management of plant diseases.

BSCI 342 Biology of Reproduction (3) Prerequisite: BSCI 105 or permission of department. Also offered as WMST 326. Credit will be granted for only one of the following: BSCI 342 or WMST 326. Formerly ZOOL 326. The biology of the reproductive system with emphasis on mammals and, in particular, in human reproduction. Hormones, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior, and menopause.

BSCI 348 Special Topics in Cell Biology and Molecular Genetics (1-4) Formerly MICB 388. Presentation and discussion of special subjects in the field of cell biology and molecular genetics. Minimum of three credit hours of BSCI 348 may be applied to major.

BSCI 360 Principles of Animal Behavior (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: BSCI 105 and BSCI 106 and BSCI 222. Formerly ZOOL 360. 300-322. Studies of animal behavior with emphasis on its evolution and function. Topics include genetic basis of behavior, communication, aggression, foraging, cooperation, mate selection, and relevance for conservation.

BSCI 361 Principles of Ecology (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: BSCI 106 and BSCI 105 and BSCI 222. Formerly ZOOL 222. Three hours of lecture and six hours of laboratory per week. Prerequisites: BSCI 105 and BSCI 106 and (MATH 140 or MATH 220). Formerly ZOOL 328N. Basic principles of population, community, and ecosystem ecology. Use of these principles to predict possible consequences of human-caused changes in the environment and to understand the level of uncertainty of those predictions.

BSCI 362 Ecology of Marsh and Dune Vegetation (2) Prerequisite: BSCI 106. Formerly PBIO 455. An examination of the biology of higher plants in dune and marsh ecosystems.

BSCI 363 The Biology of Conservation and Extinction (3) Prerequisite: BSCI 106. Formerly ZOOL 312. Ecology, evolutionary biology, and paleontology will be applied to the study of conservation, species invasions, and extinction.

BSCI 365 International Pesticide Problems and Solutions (3) Prerequisite: BSCI 106 and BSCI 105. Three hours of lecture per week. Prerequisites: BSCI 106 and (MATH 140 or MATH 220). Formerly ZOOL 328H. An introduction to the study of pesticide problems and solutions. Focus will be on the ecological effects of pesticides on nontarget species and the environment.

BSCI 366 Biodiversity Issues in Conservation Management (3) Prerequisite: BSCI 365 and BSCI 105 and BSCI 106. Formerly PBIO 365. An introduction to biodiversity issues and their management. Laboratory study will be used to identify key biodiversity traits that are collected by students on Thursday and Saturday field trips to a wide variety of collecting sites available along the 200 mile length of the Chesapeake Bay.

BSCI 375 Biological Oceanography (3) Prerequisites: BSCI 106 and BSCI 222. Formerly ZOOL 375. Fundamentals of biological processes in the world’s oceans; emphasizes ecology of marine organisms and how ocean chemistry and ocean circulation influence biological processes such as production, dispersal, and food chain dynamics.

BSCI 378H Undergraduate Seminar in Cell Biology and Molecular Genetics Department Honors Seminar (1) Repeatable to 6 credits. Formerly MICB 389. This seminar is designed to provide qualified majors an opportunity to pursue research problems under the supervision of a member of the department.

BSCI 379H Undergraduate Seminar in Cell Biology and Molecular Genetics Department Honors Research (1-3) Prerequisite: permission of department Formerly MICB 399/PBIO 399. This course is arranged to provide qualified majors an opportunity to pursue research problems under the supervision of a member of the department.

BSCI 389H Undergraduate Seminar in Cell Biology and Molecular Genetics Department Honors Research (1-2) Prerequisite: BSCI 227/ENTM 205 or permission of department. Formerly ENTM 399. An introduction to the natural history of vertebrates, their evolutionary history, patterns of geographic distribution, and systematics.

BSCI 391 Vertebrate Zoology Laboratory (1) Prerequisite: BSCI 106 and (MATH 140 or MATH 220). Formerly ZOOL 391. Laboratory portion of BSCI 390. Required course for all students participating in departmental honors program. Repeatable to 6 credits if content differs. Formerly MICB 397. Student should consult course syllabus for specific requirements and course requirements.

BSCI 392 Vertebrate Zoology Laboratory (1) Three hours of lecture per week. Prerequisites: BSCI 106 and BSCI 224 or permission of department. Corequisite: BSCI 390. Formerly ZOOL 392. Investigations of assigned entomological problems. No more than 4 credit hours of BSCI 392 or BSCI 393 may be applied to the 120 credit hours needed for the Bachelor’s degree.

BSCI 398H Undergraduate Seminar in Entomology Research (1-2) Prerequisite: BSCI 224 or BSCI 225 or BSCI 227 or permission of department. Formerly ENTM 399. An introduction to the study of insects. Topics include insect diversity, the effects of insecticides, and the structure and function of insect anatomy.

BSCI 399H Undergraduate Seminar in Entomology Honors Seminar (1) Prerequisite: permission of department. Formerly ZOOL 398. Three hours of lecture per week. Prerequisites: BSCI 222 and (MATH 140 or MATH 220). Formerly ZOOL 399. An advanced course offering hands-on experience in performing entomological research. Current techniques for assessing immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA, and flow cytometry.

BSCI 401 Plant Biotechnology (2) Prerequisites: BSCI 411 or ANSC 203 or HORT 274 and BSCI 442. Formerly PBIO 415. Theoretical and applied consideration of current technology for crop improvement, including manipulation of whole plants, tissues, and genes.

BSCI 402 Cell Biology Lectures (3) Prerequisites: BSCI 230 and BSCI 222 and CHEM 233. Credit will be granted for only one of the following: BSCI 420 or BSCI 421. Formerly ZOOL 420. Molecular and biochemical bases of cellular organization and function in eukaryotes.

BSCI 405 Human Cell Biology (2) Prerequisites: BSCI 222 and CHEM 233. Credit will be granted for only one of the following: BSCI 405 or BSCI 406. Formerly ZOOL 405. An advanced course offering hands-on experience in performing cell biology experiments. Current techniques for assessing immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA, and flow cytometry.

BSCI 406 Biology of the Human Genome (3) Prerequisites: BSCI 222 and CHEM 233. Formerly: BSCI 317. New approaches to studying human genetics and its application to basic biology and medicine. New medical treatments and therapies will be applied to study the genetic composition of populations and the genetics of disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.

BSCI 407 Immunology Laboratory (2) Six hours of laboratory per week. Prerequisites: BSCI 222 and BSCI 223. Corequisites: BSCI 422. Formerly MICB 454. The immune system in health and disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.

BSCI 408 Molecular and Cellular Biology (3) Formerly: BSCI 320; and (PHYS 122 or PHYS 142) and (MATH 140 or MATH 220). Formerly ZOOL 440. Quantitative aspects of biology and the use of mathematical descriptions of biological phenomena. This course will be offered in a computer laboratory format.
172 Approved Courses

BSCI 427 Principles of Microscopy (2) Prerequisite: BSCI 421. An introduction to the use of light and electron microscope, that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, and ultraviolet microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

BSCI 430 Developmental Biology (3) Prerequisites: BSCI 230 and BSCI 222. Formerly ZOOL 430. Structural, functional and regulatory events and mechanisms that operate during development to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.

BSCI 432 Cell Differentiation (3) Prerequisites: BSCI 230 and BSCI 222. Formerly ZOOL 415. The processes by which cells become specialized and with other differentiation behaviors with an emphasis on the biochemical and ultrastructural mechanisms of these changes.

BSCI 433 Biology of Cancer (3) Prerequisites: BSCI 230 and BSCI 222) or permission of department. Formerly ZOOL 416. Causes and consequences of neoplastic transformations at the biochemical and cellular levels.

BSCI 434 Mammalian Histology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: BSCI 230 and mammalogy. Course does not count as an upper level lab for BIOL majors (see B441).

BSCI 441 Mammalian Physiology Laboratory (2) Four hours of practice and lecture per week. Corequisite: BSCI 440. Formerly ZOOL 423. Laboratory exercises in experimental mammalian physiology.

BSCI 442 Plant Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI 106, BIOL 105 and CHEM 103. Formerly ZOOL 420. A survey of the general physiological activities of plants.

BSCI 443 Microbial Physiology (3) Prerequisite: BSCI 223. Pre- or corequisite: BCHM 462. Formerly MCB 460. Discussion of the physical and chemical nature of the cell and the energy metabolism and assimilation of molecules by microorganisms. Viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups.

BSCI 440 Mammalian Physiology (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisites: BSCI 210 and CHEM 233 or permission of department. Formerly ZOOL 417. Cardiovascular, respiratory, renal, and muscular systems. Tissue and cell biology. Chemical and endocrine regulation of physiological functions in mammals.

BSCI 446 Microbial Ecology (3) Prerequisites: BSCI 223; and CHEM 243 or CHEM 245. Formerly MCB 480. Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.

BSCI 447 Behavioral Ecology (3) Prerequisites: BSCI 106 and CCES 222 or BSCI 222. Formerly ZOOL 465. Natural and social influences on behavior. The laboratory will focus on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

BSCI 446 Experimental Aquatic Ecology (3) Prerequisites: BSCI 106 and BSCI 224. Formerly ZOOL 484. Role of theory and experimentation in aquatic ecology. Experimental approaches and testing hypotheses.

BSCI 447 Freshwater Biology (3) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI 227 or permission of department. Formerly ZOOL 461. Biology and ecology of freshwater invertebrates in lotic and lentic habitats, their adaptations to the aquatic ecosystems, and their relationships to environmental deterioration. Laboratory will include field trips, demonstrations, and identifications.

BSCI 470 Evolutionary Mechanisms (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI 470 or ZOOL 440. Formerly ZOOL 440. Concepts and experimental tools for understanding the process of evolution, including how genetic and ecological factors combine to produce adaptive evolution, measuring genetic variation and natural selection in contemporary populations, predicting evolutionary possibilities and understanding evolutionary constraints.

BSCI 471 Molecular Evolution (3) Prerequisite: BSCI 222 or permission of department. Formerly ZOOL 441. Patterns of DNA sequence variation and the evolutionary processes caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock hypothesis. Its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.

BSCI 472 Evolutionary Biology of Plants (3) Prerequisites: BSCI 106 and BSCI 222. Formerly ZOOL 445. Evolution in plant populations and communities. Some of the major questions that will be discussed will be that of the genetic and ecological framework. Some emphasis will be placed on applying these to the evolutionary process of plants.

BSCI 473 Marine Ecology (3) Prerequisite: BSCI 224. Formerly ZOOL 473. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and methods of analysis.

BSCI 474 Mathematical Biology (4) Three hours of lecture and six hours of laboratory per week. Prerequisites: MATH 220 and MATH 221. Formerly ZOOL 425. Mathematical methods for analyzing deterministic and stochastic biological problems. Applications of a variety of techniques from dynamical system theory and evolutionary biology, neurobiology, physiology and morphogenesis. Qualitative aspects of dynamical systems will be stressed in the context of difference and/or differential equations. The computer program Mathematica will be used to obtain the numerical solutions of these equations.

BSCI 475 Symbiology (3) Prerequisite: BSCI 106. Formerly ZOOL 477. An introduction to the concept of symbiosis, with emphasis on the evolutionary and ecological significance of these associations. Adaptations for establishment and maintenance of mutualistic, commensal and parasitic associations. Emphasis on current literature and a research perspective.

BSCI 480 Arthropod Form and Function (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI 227 or permission of department. Formerly ENTM 432. Survey of the morphological, systematic and physiological aspects of the phylum Arthropoda.

BSCI 481 Insect Diversity and Classification (4) One hour of lecture and six hours of laboratory per week. Prerequisite: one year of biology including BSCI 224. Formerly ZOOL 481. A study of the taxonomy and functional morphology of the invertebrates, exclusive of insects. Emphasis on the study of living material.

BSCI 485 Protozoalogy (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of biology including BSCI 224. Formerly ZOOL 472. Basic conceptual treatment of free-living and parasitic protozoa with functional morphological and physiological aspects. The laboratory will stress observations of protozoa, living and stained, collected from diverse habitats.

BSCI 486 Systematic Microbiology (2) Prerequisite: eight credits in microbiology. Formerly MCB 400. History and philosophy of classification and classification of microorganisms. The laboratory will stress identification, use of nontraditional methods from the view of ecological habitat management.

BSCI 488 Summer Biology Institutes (1-6) Prerequisite: permission of department. Formerly BIOL 488, BIOL 489, and BIOL 490. Repeatable to 12 credits if content differs.

BSCI 490 Plant Structure (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI 105. Formerly ZOOL 425. A survey of the basic structural features of vascular plants, including subcellular organelles, cells, tissues, and organs. Emphasis on structuring on the basis of differences in morphology and functional adaptations. A detailed laboratory review of the families of flowering plants.

BSCI 492 Mycology (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: BSCI 105. Formerly ZOOL 446. An advanced course in the systematic and taxonomy of the fungi.

BSCI 493 Medicinal and Poisonous Plants (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: BSCI 106 or ZOOL 492. Formerly ZOOL 492. Credit will be granted for only one of the following: BSCI 106 or ZOOL 492. One year of chemistry, including one year of organic chemistry.

BSCI 494 Advanced Plant Taxonomy (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: BSCI 225 and BSCI 226. Formerly ZOOL 450. A review of the history and principles of plant taxonomy, with emphasis on monographic and floristic research. A detailed laboratory review of the families of flowering plants.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSOS 188</td>
<td>Selected Topics in the Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs</td>
<td>Open to students who have completed EDCC 108F. Credit will be granted for only one of the following: EDCC 188A.</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>BSOS 191</td>
<td>Introduction to Civics (3)</td>
<td>3 semester hours. An introduction to the social and historical foundations of a civil society.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BSOS 288</td>
<td>Special Topics in Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs</td>
<td>Intrduction to special topics focusing on an interdisciplinary topic related to behavioral and social sciences.</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>BSOS 333</td>
<td>Information Technology &amp; Society (3)</td>
<td>Corequisites: BSOS 102. Also offered as GTPT 333. Credit will be granted for only one of the following: BSOS 333 or GTPT 333.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BSOS 338</td>
<td>Academic Seminar for Interns: Federal and International (1-3) Two hours of lecture per week:</td>
<td>Prerequisite: permission of department. Corequisites: BSOS 338. Repeatable to 6 credits if content differs.</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>BSOS 339</td>
<td>Internship in Political Institutions: Federal and International (3-6) 8 hours per week in internship site for 15 weeks for 3 credits or 16 hours per week in internship site for 15 weeks for 6 credits.</td>
<td>Prerequisite: permission of department. Corequisites: BSOS 339. Repeatable to 6 credits if content differs.</td>
<td>3-6</td>
<td></td>
</tr>
<tr>
<td>BSOS 340</td>
<td>Special Topics in Policy Leadership and Public Administration (1-3) Repeatable to 6 credits if content differs</td>
<td>Special topical course focusing on an interdisciplinary topic related to public administration and policy.</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>BSOS 359</td>
<td>Contemporary Issues in Political Leadership and Public Administration (1-3) Repeatable to 9 credits if content differs</td>
<td>Special topical course focusing on an interdisciplinary topic related to political leadership and participation.</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>BSOS 366</td>
<td>Individual Study: State and Local Government (1-6) Repeatable to 12 credits if content differs</td>
<td>Individual study course.</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>BSOS 452</td>
<td>Treatment of Criminals and Delinquents (3)</td>
<td>Prerequisite: CCJS 105. For honor students only.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 100</td>
<td>Introduction to Criminal Justice (3)</td>
<td>Formerly CJUS 100. Introduction to the legal and institutional contexts of criminal justice in a democratic society, with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration of law enforcement agencies, including functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 105</td>
<td>Introduction to Criminal Justice (3)</td>
<td>Formerly CRIM 220. Criminal behavior and the methods of its study; causation typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 110</td>
<td>Introduction to Criminology (3)</td>
<td>Formerly CRIM 220. Criminal behavior and the methods of its study; causation typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 120</td>
<td>Criminal Law in Action (3)</td>
<td>Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of selected criminal acts. Classification and analysis of selected criminal offenses.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 234</td>
<td>Law of Criminal Investigation (3)</td>
<td>Prerequisite: CCJS 230. General principles and theories of criminal procedure. Due process, arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 288</td>
<td>Special Topics in Law and Justice (3)</td>
<td>Prerequisites: CCJS 105 and CCJS 230. Repeatable to 6 credits if content differs. An analysis of recent developments in criminal law and their implications for criminal justice systems and research. Focus will be on Supreme Court decisions and legislative initiatives.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 300</td>
<td>Criminological and Criminal Justice Research Methods (3)</td>
<td>Prerequisites: CCJS 100 and CCJS 105; and one of: MATH 111 and (CCJS 100 or CCJS 230 or EDCP 108).</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 320</td>
<td>Introduction to Criminalistics (3)</td>
<td>Prerequisite: CCJS 234. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence as it relates to crime investigation, laboratory detection, crime photography, fingerprints and other impressions, ballistics, glass, hair, handwriting and documentation examination, drug analysis, and similar types of evidence.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 330</td>
<td>Contemporary Criminalological Issues (3)</td>
<td>Prerequisite: CCJS 105. Career criminals, prison overcrowding, prediction, ecological studies of crime, family and delinquency and similar criminological problems.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 340</td>
<td>Concepts of Law Enforcement Administration (3)</td>
<td>Prerequisite: CCJS 100 or equivalent. An introduction to components of organization and management as they relate to law enforcement. Principles of structure, process, policy and procedure, communication and authority, division of work and organizational controls. Human element in the organization of law enforcement.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 350</td>
<td>Juvenile Delinquency (3)</td>
<td>Prerequisite: CCJS 105. Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention; organization and social responsibility of law enforcement.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 352</td>
<td>Drugs and Crime (3)</td>
<td>Prerequisite: CCJS 100. An analysis of the role of criminal justice in the control of drug use and abuse.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 357</td>
<td>Industrial and Retail Security Administration (3)</td>
<td>Prerequisite: CCJS 100. The origins of contemporary private security systems. Organization and management of industrial and retail protective units.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 359</td>
<td>Field Training in Criminology and Corrections (1-6)</td>
<td>Prerequisite: six credits in criminology and permission of department. Supervised field training in public or private agencies.</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>CCJS 360</td>
<td>Victimology (3)</td>
<td>Prerequisite: CCJS 105. Overview of the history and theory of victimology. Analysis of victimization of special categories with an emphasis on the types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the impact of the crime on the victim.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 388</td>
<td>Independent Reading Course in Criminology and Criminal Justice (3)</td>
<td>Prerequisite: CCJS 100 or CCJS 105. For honor students only.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 399</td>
<td>Independent Study in Criminal Justice (3)</td>
<td>Prerequisite: CCJS 100 or equivalent. Role and treatment of social/economic minorities in the criminal justice system.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 444</td>
<td>Advanced Law Enforcement Administration (3)</td>
<td>Prerequisite: CCJS 340 or permission of department.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 452</td>
<td>Crime and Delinquency Prevention (3)</td>
<td>Prerequisites: CCJS 105 or CCJS 350 or permission of department. Methods and programs in prevention of crime and delinquency.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CCJS 455</td>
<td>Treatment of Criminals and Delinquents (3)</td>
<td>Prerequisites: CCJS 105 or CCJS 350 or permission of department.</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
CHEM 103 General Chemistry I (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 102 or CHEM 233 or CHEM 235. Intended for students whose curricula require one year of chemistry. The nature and composition of matter, chemical calculations, elements and inorganic compounds.

CHEM 104 Fundamentals of Organic and Biochemistry (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 103 or CHEM 105. Credit will be granted for only one of the following: CHEM 103, CHEM 105, CHEM 107, CHEM 111, CHEM 114. The first semester of a course sequence intended for students whose curricula require one year of chemistry.

CHEM 121 Chemistry in the Modern World (3) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: A grade of C or better in CHEM 233 or CHEM 235. The "C" or better in the prerequisite is required for Life Science majors. A course primarily for chemists and chemical engineers.

CHEM 237 Environmental Chemistry (3) Three hours of lecture, six hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 103, CHEM 105, CHEM 107, or CHEM 111. This course is required for Life Science majors. The "C" or better in the prerequisite is required for Life Science majors. A course primarily for chemists and chemical engineers.

CHEM 277 Inorganic and Analytical Chemistry Lab (3) One hour of lecture and six hours of laboratory per week. Prerequisite: CHEM 131 and CHEM 233. Credit will be granted for only one of the following: CHEM 131, CHEM 233, CHEM 255. The "C" or better in the prerequisite is required for Life Science majors. A course primarily for chemists and chemical engineers.

CHEM 243 Organic Chemistry II (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 233 or CHEM 235. The "C" or better in the prerequisite is required for Life Science majors. A course primarily for chemists and chemical engineers.

CHEM 248 Physical Chemistry Laboratory II (2) One hour lecture-recitation and one three-hour laboratory period per week. Prerequisite: CHEM 481. An introduction to a structured programming language (PASCAL), with examples and applications chosen from the biological and chemical sciences.

CHEM 257 Physical Chemistry I (3) Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM 142 and CHEM 441. An introduction to a structured programming language (PASCAL), with examples and applications chosen from the biological and chemical sciences.
CHEM 487 Computer Applications in the Biological and Chemical Sciences (3) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 113 and CHEM 287 or equivalent; and knowledge of a high-level programming language (PASCAL, FORTRAN, or "C"). The utilization of computers to solve chemical and biological problems, with emphasis on the utilization of available software rather than "do now" programming.

CHEM 491 Advanced Organic Chemistry Laboratory (4) One hour of lecture and 10 hours of laboratory per week. Prerequisite: CHEM 243. Formerly CHEM 433 and CHEM 443. Credit will be granted for only one of the following: CHEM 433 and CHEM 443 or CHEM 491. Advanced synthetic techniques in organic chemistry with an emphasis on spectroscopy for structure determination.

CHEM 492 Advanced Inorganic Chemistry Laboratory (3) One hour of lecture and 10 hours of laboratory per week. Corequisite: CHEM 401. Synthetic and structural inorganic chemistry. Emphasis on spectroscopy methods for structure determination.

CHEM 498 Special Topics in Chemistry (3) Three lectures or two lectures and one three-hour laboratory per week. Prerequisite varies with the nature of the topic being considered. Course may be repeated for credit if the subject matter is substantially different, but not more than three credits may be credited as a fraction of major supporting area requirements for chemistry majors.

CHIN — Chinese

CHIN 101 Elementary Chinese I (6) Non-majors admitted only after a placement interview. Introduction to speaking, reading, and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.

CHIN 102 Elementary Spoken Chinese (3) Prerequisite: CHIN 101 or equivalent. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation. May be taken in conjunction with CHIN 101.

CHIN 103 Elementary Written Chinese (3) Prerequisite: CHIN 101 or equivalent. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing. May be taken in conjunction with CHIN 102.

CHIN 105 Elementary Chinese - Accelerated Track (3) Prerequisite: permission of department. Open to students who have completed CHIN 101, CHIN 102, or CHIN 103. Accelerated instruction in Mandarin Chinese at the elementary level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 201 Intermediate Spoken Chinese I (3) Prerequisite: CHIN 102 or equivalent. Non-majors admitted only after a placement interview. Emphasis on development of conversational skills with vocabulary buildup and controlled conversation.

CHIN 202 Intermediate Written Chinese I (3) Prerequisite: CHIN 103 or equivalent. Non-majors admitted only after a placement interview. Reading and writing skills with emphasis on grammar and Chinese characters.

CHIN 203 Intermediate Spoken Chinese II (3) Prerequisite: CHIN 201 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 201.

CHIN 204 Intermediate Written Chinese II (3) Prerequisite: CHIN 202 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 202.

CHIN 205 Intermediate Chinese - Accelerated Track (3) Prerequisite: permission of department. Not open to students who have completed CHIN 201, CHIN 202, CHIN 203, or CHIN 204. Accelerated instruction in Mandarin Chinese at the intermediate level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 213 Chinese Poetry into English: An Introduction (3) Prerequisite: CHIN 202 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 201.

CHIN 302 Intermediate Spoken Chinese I (3) Prerequisite: CHIN 301 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 301.

CHIN 305 Life in China through TV Plays I (3) Prerequisite: CHIN 203, CHIN 204 or permission of department. Using authentic Chinese language material in short TV plays to learn about society and life in China.

CHIN 306 Life in China through TV Plays II (3) Prerequisite: CHIN 305 or permission of department. Continuation of CHIN 305 using authentic Chinese language material in TV plays to learn about society and life in China.

CHIN 313 Chinese Poetry and Drama in Translation (3) Writing of the major poets, essayists, and historians from the 18th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

CHIN 314 Chinese Fiction and Drama in Translation (3) Representative short stories, novels, and plays from the third through the nineteenth centuries. No knowledge of Chinese is required.

CHIN 315 Modern Chinese Literature in Translation (3) Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western immersion program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

CHIN 331 Chinese Calligraphy: Theory and Practice (3) Beginning brushwork and lectures on the culture. Characteristics for practice selected to correspond to lecture topics. History of the writing system; major scripts, modes, and styles.

CHIN 388 Topics in Chinese Literature in Translation (3) Repeatable to 6 credits if content differs. Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese is required.

CHIN 389 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

CHIN 401 Readings in Modern Chinese I (3) Prerequisite: CHIN 302 or equivalent. Non-majors admitted only after a placement interview. Emphasis on politics, economics, sociology, and literature. Emphasis on rapid reading, reinforced by conversations and compositions.

CHIN 402 Readings in Modern Chinese II (3) Prerequisite: CHIN 401 or permission of department. Credit will be granted for only one of the following: CHIN 402 or CHIN 404. Formerly CHIN 404. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

CHIN 403 Classical Chinese I (3) Prerequisite: CHIN 302. Introductory classical Chinese using literary and historical sources in the original language.

CHIN 404 Classical Chinese II (3) Prerequisite: CHIN 302. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

CHIN 411 Business Chinese I (3) Prerequisite: CHIN 402 or permission of department. Non-majors admitted only after a placement interview. Open to students who have completed CHIN 303. Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.

CHIN 412 Business Chinese II (3) Prerequisite: CHIN 411 or permission of department. Non-majors admitted only after a placement interview. Open to students who have completed CHIN 304. Continuation of CHIN 411.

CHIN 413 Advanced Conversation and Composition (3) Prerequisite: CHIN 402 or permission of department. Non-majors admitted only after a placement interview. Limited to 8 credits. Practice in writing articles, essays, letters, and reports on selected topics. Conversation directed toward everyday situations and topics related to life in China.

CHIN 414 Readings in Current Newspapers and Periodicals (3) Prerequisite: CHIN 402 or equivalent. Non-majors admitted only after a placement interview. Reading of periodical literature on selected topics with discussions and essays in Chinese.

CHIN 421 Sounds and Transcriptions of Mandarin Chinese (3) Prerequisite: CHIN 402 or permission of department. Chinese Sentence patterns studied contrasted with English and in terms of current pedagogical as well as linguistic theories.

CHIN 431 Translation and Interpretation I (3) Prerequisite: CHIN 302 or equivalent and permission of department. Theory and practice of Chinese-English translation and interpretation with emphasis on translation.

CHIN 432 Translation and Interpretation II (3) Prerequisite: CHIN 402 or equivalent and permission of department. Workshop on Chinese-English translation and interpretation, with emphasis on seminar (consecutive) interpretation, and introduction to conference (simultaneous) interpretation.

CHIN 441 Traditional Chinese Fiction (3) Prerequisite: permission of department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

CHIN 442 Modern Chinese Fiction (3) Prerequisite: CHIN 402 or permission of department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

CLAS — Classics

CLAS 101 Ancient Greek Religious Ideas and Practices (3) Survey of Greek religious ideas and practices as conceived by Aristotle in The Poetics.

CLAS 102 Classical Foundations (3) Aspects of the ancient world taught through the medium of influential classical texts.

CLAS 170 Greek and Roman Mythology (3) Taught in English, no prerequisite: cannot be taken for language credit. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism.

CLAS 270 Greek Literature in Translation (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

CLAS 271 Roman Literature in Translation (3) Selections in translation of Latin literature to the time of Aelipus. Special emphasis will be placed on poetry of the Augustan Age. No knowledge of Latin is required.

CLAS 309 Special Topics in Classical Literature (3) Repeatable to 9 credits if content differs. Readings in translation.

CLAS 310 Ancient Philosophy (3) Prerequisite: six credits in classical language. Credit will be granted for only one of the following: CLAS 310 or PHIL 310. The origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato and Aristotle.

CLAS 315 Greek and Roman Athletics (3) The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.

CLAS 320 Women in Classical Antiquity (3) Also offered as WMST 320. Credit will be granted for only one of the following: CLAS 320 or WMST 320. A study of women’s image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical and artistic evidence: special emphasis on women’s role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3) Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

CLAS 372 Classical Epic (3) Introduction to major classical epic poems in translation.

CLAS 374 Greek Tragedy in Translation (3) Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.
CMLT 498 Selected Topics in Comparative Studies (3)

CMLT 499 Special Topics (1-3) For CMPS majors only. Repeatable to 3 credits if content differs.

CMPS 497 Experimental Learning (3) Prerequisite: Permission of CMPS Department. For CMPS majors only. This course is part of the experiential learning internship program, Corporate Scholars, set up by the college and industry. It offers students an opportunity to gain practical experience in their chosen career fields.

CMSC — Computer Science

CMSC 102 Introduction to Information Technology (3) For non-majors only. Also offered as UNIV 133. Not open to students who have completed CMSC 106, CMSC 114 or CMSC 214. Credit will be granted for only one of the following: CMSC 102, UNIV 133 or CMSC 214. If CMSC 102 is taken before CMSC 214, then credit will be granted for both.

CMSC 103 Introduction to Computing (3) Not open to students who have completed CMSC 214 or CMSC 214W. Credit will be granted for only one of the following: CMSC 103 or CMSC 214 or CMSC 113. If CMSC 103 is taken before CMSC 214, then credit will be granted for both.

CMSC 106 Introduction to C Programming (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Pre- or corequisite: MATH 140 Only for CMPS, ENCP and students with major code 2299P. Not open to students who have completed CMSC 103 or CMSC 214.

CMSC 114 Computer Science I (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: CMSC 106 with a grade of C or better; and permission of department based on satisfactory performance on the department’s placement examination. Credit will be granted for only one of the following: CMSC 214 or CMSC 113. With CMSC 214, the course may be used for computer science majors.

CMSC 115 Introduction to UNIX Operating System (3) Recommended: prior experience with computing. Effective use of UNIX tools for students of all disciplines. UNIX file system; shell programming; text editing; filters; pipes; macro processing; data analysis; text processing; document maintenance.

CMSC 116 Computer Science II (4) Four hours of lecture and two hours of laboratory per week. Prerequisite: CMSC 114 with a grade of C or better; and permission of department based on satisfactory performance on the department’s placement examination.

CMSC 204 Data Structures (3) A study of data structures, recursion, and object-oriented programming using C++.

CMSC 250 Discrete Structures (3) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: MATH 141 and permission of department. Formerly CMSC 150. Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to computer science modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.

CMSC 251 Algorithms (3) Prerequisites: CMSC 214 with a grade of C or better; and permission of department. A systematic study of the complexity of some elementary algorithms related to sorting, searching, graphs and trees, and some elementary optimization techniques using mathematical techniques to solve recurrences and summations.

CMSC 297 Honor Seminar (1) An introduction to the breadth of computer science research. Introduces all Computer Science Honors students, especially those considering a career in research. Will cover work from some of the key figures in the history of computer science, as well as research being pursued at Maryland.

CMSC 311 Computer Organization (3) Prerequisite: CMSC 214 with a grade of C or better and CMSC 250 with a grade of C or better and permission of department. Introduction to computer organizations. Design of computer logic circuits. Organization of central processors, including instruction sets, register transfer models, control microprogramming, data representation, and arithmetic algorithms. Memory and input/output organization.

CMSC 330 Organization of Programming Languages (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: CMSC 214 with a grade of C or better and CMSC 250 with a grade of C or better and permission of department. The semantics of programming languages and their run-time organization. Several different models of languages are studied, including procedural (e.g., LISP), rule-based (e.g., Prolog), and object-oriented (e.g., C++, Smalltalk). Run-time structures, including dynamic and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area internet environment.

CMSC 415 Systems Programming (3) Prerequisites: CMSC 214 with a grade of C or better; and permission of department; or CMSC 250 with a grade of C or better; and permission of department; or CMSC graduate student. An introduction to batch systems, spooling systems, and third-generation multiprogramming systems. Discussion of the parts of an operating system in terms of function, structure, and implementation. Basic resource allocation policies.

CMSC 416 Computer and Network Security (3) Prerequisites: CMSC 311 with a grade of C or better and CMSC 330 with a grade of C or better; and permission of department; or CMSC graduate student. An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area internet environment.

CMSC 417 Computer Networks (3) Prerequisites: A grade of C or better in CMSC 251A, a grade of C or better in CMSC 311, and a grade of C or better in CMSC 330; and permission of department; or CMSC graduate student. An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area internet environment.

CMSC 420 Data Structures (3) Prerequisites: A grade of C or better in CMSC 330; and permission of department; or CMSC graduate student. Description, properties, and storage allocation of data structures including lists and trees. Algorithms for manipulating structures. Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems.

CMSC 421 Introduction to Artificial Intelligence (3) Prerequisites: (a) a grade of C or better in CMSC 251; and (b) a grade of C or better in CMSC 330; and (c) a grade of C or better in CMSC 330; or (d) a grade of C or better in CMSC 330. Areas and issues in artificial intelligence, including knowledge representation, reasoning, learning, planning, natural languages, expert systems, robotics, implementation, and application of programming languages (e.g., LISP, PROLOG, C++, SMALLTALK), programming techniques (e.g., pattern matching, data structures) and control structures (e.g., agendas, data dependencies).
CMSC 422 Programming Robots (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: CMSC 215 and CMSC 214 with a grade of C or better and permission of department. Examination of programming issues involved in creating robots, robotic behavior, and perception, and complex environments in "intelligent" ways. Topics include traditional robotics, behavior-based robotics, sensor processing, sensor-based control, and robotic behavior. Lecture. Note: Not for credit in graduate program for computer science.

CMSC 424 Database Design (3) Prerequisite: CMSC 420 with a grade of C or better; and permission of department; or CMSC graduate student. Motivation for the database approach as a mechanism for modeling the real world. Review of the three popular data models: relational, network, and hierarchical. Comparison of the advantages and disadvantages of each and strategies, and query facilities. Theory of database design logic.

CMSC 426 Image Processing (3) Prerequisite: CMSC 420 and permission of department; or CMSC graduate student. An introduction to basic techniques in the manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, motion analysis, and halftoning. Computer encoding, processing, and analysis of curves.

CMSC 427 Computer Graphics (3) Prerequisites: MATH 240; and a grade of C or better in CMSC 420. An introduction to the principles of computer graphics. Includes an introduction to graphics hardware and systems. Introduction to the mathematics of affine and projective transformations; perspective, curve and surface modeling, algorithms for hidden-surface removal, illumination, shading, and reflection.

CMSC 430 Theory of Language Translation (3) Prerequisites: a grade of C or better in CMSC 330; and permission of department; or CMSC graduate student. Formal translation of programs into a target language: syntax, semantics, and sources; recognizer and regular grammars. Context-free parsing techniques such as recursive descent, precedence, LL(1) and LR(1). Compiler construction, improvement, a syntax-directed translation scheme.

CMSC 433 Programming Language Technologies and Paradigms (3) Prerequisite: CMSC 330. Programming languages and their implementation and use in software design and implementation.

CMSC 434 Human Factors in Computer and Information Systems (3) Prerequisites: CMSC 330 with a grade of C or better and PSYC 100 and STAT 400 and permission of department; or CMSC graduate student. Human factors issues in the development of software, the use of database systems, and management of interactive systems. Science base theories, models, usability studies, and controlled experimentation, and software engineering with user interface development environment. Understanding programming languages, languages and languages; menus, forms, and direct manipulation; graphical user interfaces, computer-supported cooperative work, information search and visualization; input/output devices, and display design.

CMSC 435 Software Engineering (3) Prerequisites: CMSC 412, CMSC 420, CMSC 420, CMSC 430, or CMSC 433) with a grade of C or better and permission of department; or CMSC graduate student. Software engineering and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.

CMSC 450 Logic for Computer Science (3) Prerequisites: CMSC 251 and MATH 141 with a grade of C or better and permission of department; or CMSC graduate student. Also offered as MATH 450. An introduction to logic as a tool that computer scientists use to prove the correctness of algorithms and programs. It is the language of circuit design and database querying, and it is used to describe computation. Course covers propositional logic, first-order logic, and automated theorem proving. Emphasis on the techniques of constructing formal proofs.

CMSC 452 Elementary Theory of Computation (3) Prerequisites: CMSC 251 and MATH 251 with a grade of C or better. Alternative theoretical models of computation, types of automata, and their relations to formal grammars and languages.

CMSC 456 Cryptology (3) Prerequisite: Two 200-level MATH courses or permission of department. Also offered as MATH 456. Credit will be granted for only one of the following: CMSC 456 or MATH 456. Important mathematical problems and algorithms for computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability, and computer science topics include complexity theory.

CMSC 460 Computational Methods (3) Prerequisites: MATH 240 and MATH 241 and CMSC 105 or CMSC 106 or CMSC 114 or ENEE 114 or permission of instructor. Also offered as AMSC 460. Credit will be granted for only one of the following: AMSC/MATH/CMSC 460 or AMSC/MATH/CMSC 466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

CMSC 466 Introduction to Numerical Analysis I (3) Prerequisites: MATH 240 and MATH 241 and CMSC 105 or CMSC 106 or CMSC 114 or ENEE 114 or permission of instructor. Also offered as AMSC 466. Credit will be granted for only one of the following: AMSC/MATH/CMSC 460 or AMSC/MATH/CMSC 466 or AMSC/MATH/CMSC 467. Linear systems, least squares, eigenvalue problems, ordinary differential equations, fast Fourier transforms.

CMSC 475 Combinatorics and Graph Theory (3) Prerequisites: MATH 251 or CMSC/MATH 251 with a grade of C or better; or CMSC graduate student. Also offered as MATH 475. General enumeration methods, difference equations, generating functions, elements of graph theory, linear programming, and applications of graph theory to transport networks, matching theory, and graph algorithms.

CMSC 477 Optimization (3) Prerequisites: AMSC/MATH/CMSC 460, AMSC/MATH/CMSC 466, or AMSC/MATH/CMSC 467. Also offered as AMSC 477. Credit will be granted for only one of the following: AMSC/MATH/CMSC 460 or AMSC/MATH/CMSC 466 or AMSC/MATH/CMSC 467. Linear programming and integer programming; the simplex algorithm and dual linear programs; convex sets and elements of convex programming; combinatorial optimization, integer programming.

CMSC 498 Special Problems in Computer Science (1-3) Prerequisites: Permission of instructor. An individualized course designed to allow a student or students to pursue a specialized topic or project under the supervision of the senior staff. Credit according to work done.

COMM — Communication

COMM 100 Foundations of Oral Communication (3) Not open to students who have completed COMM 107 or SPCH 107. Credit will be granted for only one of the following: COMM 100 or COMM 107 or SPCH 100 or SPCH 107. Formerly SPCH 100. Prerequisite for advanced communication courses. A study of the oral communication process, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to college communication and upon the preparation of different types of oral discourse.

COMM 107 Oral Communication: Principles and Practices (3) Not open to students who have completed COMM 100 or SPCH 107. Credit will be granted for only one of the following: COMM 107, COMM 107, or SPCH 100 or SPCH 107. Formerly SPCH 107. A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.

COMM 170 Foundations of Listening (3) Formerly SPCCH 170. Role, process, and levels of listening behavior and the development of listening skills.

COMM 200 Advanced Public Speaking (3) Formerly SPCCH 200. Rhetorical principles and models of speech composition in conjunction with the preparation and presentation of specific forms of public speaking.

COMM 220 Small Group Discussion (3) Formerly SPCCH 220. Principles, methods and types of interaction occurring in small groups; an emphasis on group discussion and decision-making.


COMM 250 Introduction to Communication Inquiry (3) Formerly SPCCH 250. An introduction to the field of communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

COMM 324 Communication and Gender (3) Formerly SPCCH 324. The creation of images of male and female, and masculinity and feminine, through communication, the role of the media in creating these images, and the effects of these images on the development of male and female sexual identities and roles.


COMM 340 Communicating the Narrative (3) Formerly SPCCH 340. The role of narratives in communicating messages and development of strategies to effectively communicate the narratives to different storylines, oral reading, and anecdotes.

COMM 350 Public Relations Theory (3) Prerequisite: Grade C or better in JOUR 201 or COMM 250; or permission of department. Not open to students who have completed JOUR 303. Credit will be granted for only one of the following: COMM 350 or COMM 430 or JOUR 330 or JOUR 530. Formerly JOUR 330. The historical development and contemporary status of public relations in business, government, associations and other organizations. Application of formal theories and social science methods to the research, planning, communication and evaluation aspects of the public relations field.

COMM 351 Public Relations Techniques (3) Prerequisite: COMM 350 and Grade C or better in JOUR 202. Not open to students who have completed COMM 351. Credit will be granted for only one of the following: COMM 351 or JOUR 334. Analysis of eight major public relations programs, the creation of images of male and female, and masculinity and feminine, through communication, the role of the media in creating these images, and the effects of these images on the development of male and female sexual identities and roles.

COMM 354 Public Relations Practices (3) Prerequisite: COMM 350. Not open to students who have completed JOUR 334. Credit will be granted for only one of the following: COMM 354 or JOUR 334. Formerly JOUR 334. Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public.

COMM 360 The Rhetoric of Black America (3) Formerly SPCCH 360. An historical-sequential study of the rhetoric of Black Americans from the colonial period to the present.


COMM 383 Urban Communication (3) Formerly SPCCH 383. A study of communication variations in the urban setting with emphasis on the role of class, gender, ethnicity, and race in ethnic relations. Strategies for improving communication.

COMM 386 Experiential Learning (3-6) Nine hours of laboratory per week. Prerequisite: permission of department. 56 semester hours. For COMM majors only. Supervised experience in communication profession. Relation of academic training to professional experience.

COMM 388 Communication Practicum (1-3) Prerequisite: permission of department. Repeatable to 3 credits if content differs. Supervised professional-level practice in communication.
COMM 398 Selected Topics in Communication (3) 
Recommended if credits differ. Formerly SPCH 398. 
Topical study of contemporary issues in speech communication.

COMM 399 Honors Thesis (3) Nine hours of laboratory per week. Prerequisite: permission of department. For COMM majors only. Repeatable to 6 credits if content differs. Formerly SPCH 399.

COMM 400 Research Methods in Communication (3) Prerequisite: COMM 250 and an introductory course in statistics. Formerly SPCH 400. Philosophy of scientific method; role of theory, research ethics; empirical research methods (measurement, sampling, design, analysis).

COMM 401 Interpreting Strategic Discourse (3) Formerly SPCH 401. Principles and approaches for practical analysis of discourse designed to shape audience opinion.


COMM 420 Theories of Group Decision (3) Formerly SPCH 420. Current theory, research and techniques regarding small group process. Group dynamics, leadership and decision-making.

COMM 422 Communication Management (3) Formerly SPCH 422. Communication management policies, plans, channels, and practices in the management of the communication function in organizations.


COMM 424 Communication in Complex Organizations (3) Formerly SPCH 424. Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

COMM 425 Negotiation and Conflict Management (3) Formerly SPCH 425. Role of communication in shaping negotiation and conflict processes and outcomes.

COMM 426 Conflict Management (3) Recommended: COMM 425, COMM 431, and COMM 426. Role of communication in managing conflict processes.

COMM 430 Public Relations Theory and Techniques (3) Prerequisite: JOUR 201 or equivalent; and permission of department. Not open to students who have completed COMM 350. Credit will be granted for only one of the following: COMM 350, COMM 430, COMM 630, JOUR 350 and JOUR 630. Formerly JOUR 350. Theories relevant to the strategic management of organizations and channels used in programs to communicate with publics of organizations.

COMM 435 Theories of Intercultural Communication (3) Prerequisite: COMM 440 or permission of department. Formerly SPCH 435. Approaches and research trends in the study of intercultural communication.

COMM 450 Classical and Medieval Rhetorical Theory (3) Credit will be granted for only one of the following: COMM 450, SPCH 450, COMM 650 or SPCH 650. Formerly SPCH 450. A survey of rhetorical theory in the classical and medieval periods. Emphasis is placed on the nature of rhetoric per se and the theoretical problems which gave rise to its development within both periods. Authors include Isocrates, Plato, Aristotle, Cicero, Quintillian, Hermogenes, Martianus Capella, Alberic of Monte Cassino, Geoffrey of Vinsauf and Robert of Baseven.

COMM 451 Renaissance & Modern Rhetoric Theory (3) Formerly SPCH 451. Survey of rhetorical theory in the renaissance and modern periods; emphasis is placed on the theoretical trends that dominate rhetorical thinking during both periods—especially in Great Britain. Authors include Wyclif, Sherry, Rainoldie, Day, Hyperius, Cox, Rams, Talon, Bacon, Pascal, Fenelon, Sheridan, Campbell, Blair, and Whately.

COMM 453 The Power of Discourse in American Life (3) Formerly SPCH 453. The potential of language forms and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of contemporary political and cultural discourse on public understanding, public policy, and day-to-day life.

COMM 455 Speechwriting (3) Formerly SPCH 455. The study of message strategies in order to research and develop effective speech texts appropriate to speakers and their audiences in various public contexts.

COMM 460 Public Life in American Communities, 1634-1900 (3) Formerly SPCH 460. Analysis of how people used their voice to create public life. Focus is on the diverse social communities that have characterized American life and the place and characteristics of oral discourse in each.

COMM 461 Voices of Public Leadership in the Twentieth Century (3) Formerly SPCH 461. Study of the use of speaking in the power struggles of the twentieth century. Focus is on important speakers of the century, their social and political role, and the influence, and the struggle to expand the diversity of voices with power in the public sphere.

COMM 468 Seminar in Mediated Communication (3) Prerequisites: COMM/JOUR 350 or COMM 450 or COMM 471. Junior standing. Repeatable to 6 credits if content differs. A seminar examination of specific topical articles related to the study of mediated communication.

COMM 469 The Discourse of Social Movements (3) Recommended: COMM 401, junior standing. Repeatable to 6 credits if content differs. Formerly SPCH 469. Study of key social movements that have influenced American social and political life. In alternate years the Civil Rights Movement and the Rhetoric of Women’s Suffrage and Abolitionism. Consideration of how groups excluded from or marginalized in American political life affect social change.

COMM 470 Listening (3) Formerly SPCH 470. The principles of listening behavior.

COMM 471 Public Communication Campaigns (3) Prerequisite: COMM 200 or permission of department. Formerly SPCH 471. Diffusion theory and its implications for public communication campaigns.

COMM 472 Nonverbal Communication (3) Formerly SPCH 472. Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

COMM 475 Persuasion (3) Formerly SPCH 475. Bases of persuasion, with emphasis on recent experimental developments in persuasion.

COMM 476 Language, Communication, and Action (3) Formerly SPCH 476. Systems, strategies, and processes of human communication. Topics include language, meaning, intention, understanding, and consequences of communication.

COMM 477 Discourse Analysis (3) Formerly SPCH 477. Concepts of textual and discourse analysis applied to speech situations.

COMM 478 Communication Colloquium (1) Repeatable to 4 credits if content differs. Formerly SPCH 478. Current trends and issues in the field of communication, stressing recent research methods. Recommended for senior and graduate students only. One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Introduction to talk for the beginning student.

COMM 479 Introduction to American Social Dance (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Social dance forms of North America.

COMM 482 Intercultural Communication (3) Formerly SPCH 482. The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

COMM 483 Senior Seminar in Public Relations (3) Prerequisite: COMM 351 and COMM 400. Not open to students who have completed JOUR 483. Credit will be granted for only one of the following: COMM 483 or JOUR 483. Formerly JOUR 483. Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.

COMM 488 Communication Portfolio Project (1) Senior standing. For COMM majors only. Repeatable to 3 credits if content differs. Formerly SPCH 488. Preparation of the professional communication portfolio.

COMM 498 Topical Research (1-3) Prerequisite: permission of department. One hour of lecture and two hours of laboratory per week. Techniques of reducing tension and achieving integrated muscular control and coordination.

COMM 500 Practicum in Choreography, Production and Performance (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

CPS 120 Introductory to Dance (1) A study of dance as a form of communication and as an art form; a survey of the history, styles and styles of dance, and their relationships to other art forms.

CPS 218 College Park Scholars Colloquium I (1-3) Prerequisite: admission to College Park Scholars Program. Colloquium for specific College Park Scholars Program.

CPS 318 College Park Scholars Colloquium II (1-3) Prerequisite: admission to College Park Scholars Program. Colloquium for specific College Park Scholars Program.

CPS 386 Experiential Learning (3-6)

DANC — Dance

DANC 102 Rhythmic Training for Dance (2) Basic approaches to rhythmic principles related to dance.

DANC 108 Improvisation I (2) Repeatable to 4 credits. An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.

DANC 118 Beginning Tap (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Introduction to tap for the beginning student.

DANC 119 Introduction to American Social Dance (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Social dance forms of North America.

DANC 128 Fundamentals of Ballet (2) One hour of lecture and two hours of laboratory per week. For non-majors only. Introduction to ballet technique and terminology for the beginning student.

DANC 138 Introduction to Ethnic Dance (2) Repeatable to 4 credits with permission of department. Traditional dances and music of selected cultures.

DANC 148 Fundamentals of Modern Dance (2) One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to modern dance with emphasis on the development of fundamental movement skills.

DANC 149 Fundamentals of Modern Dance II (3) Prerequisite: DANC 148 or audition. Continuation of DANC 148. Repeatable to a maximum of 6 credits only with permission of instructor.

DANC 158 Fundamentals of Jazz (2) One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to the jazz style in dance for the beginning student.

DANC 171 Movement Integration I (2) One hour of lecture and two hours of laboratory per week. Techniques for reducing tension and achieving integrated muscular control and coordination.

DANC 199 Practicum in Choreography, Production and Performance I (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

DANC 200 Introduction to Dance (3) A study of dance as a form of communication and as an art form; a survey of the history, styles and styles of dance, and their relationships to other art forms.

DANC 208 Choreography I (3) Prerequisites: DANC 102 and DANC 109. Repeatable to 6 credits. Basic principles of dance composition: space, time, dynamics, and movement invention. The development of critical awareness.
ECON 340 International Economics (3) Prerequisite: ECON 200 and ECON 201 or ECON 205. Credit will be granted for only one of the following: ECON 350 or ECON 450. Formerly ECON 440. A description of international trade and the analysis of international economic relations, exchange rates, balance of payments. Analysis of policies of protection, devaluation, and exchange rate stabilization and their consequences.

ECON 350 Introduction to Public Sector Economics (3) Prerequisite: (ECON 200 and ECON 201) or ECON 205. Credit will be granted for only one of the following: ECON 350 or ECON 450. Formerly ECON 450. The role of federal, state, and local governments in meeting public wants. Analysis of theories of taxation, spending, relative benefits, and efficiency analysis of the cost analysis and income redistribution, and their policy applications.

ECON 355 Economics of Crime and Law Enforcement (3) Prerequisite: (ECON 200 and ECON 201) or ECON 205. Economics of crime and the criminal justice system, including such topics as the measurement of crime, economic models of crime, cost and benefits of police and prisons, private protection, gambling and other victimless crimes, and organized crime.

ECON 361 Economics of American Industries (3) Prerequisites: (ECON 200 and ECON 201) or ECON 205. A survey of industrial organization theory. Analysis of the structure, conduct, performance, and public policies in selected American industries.

ECON 370 Labor Markets, Human Resources, and Trade Unions (3) Prerequisites: (ECON 200 and ECON 201) or ECON 205. Economics of labor markets and the American labor movement. Analysis of labor force growth and composition, the theories of collective bargaining, operations, theories of wage determination, the wage-price spiral, collective bargaining, and governmental regulation of employment and labor relations.

ECON 374 Sex Roles in Economic Life (3) Prerequisites: ECON 200 and ECON 201. The role of gender in the market; the division of labor in the home and the workplace; sex; the child care industry; women in poverty.

ECON 375 Economics of Poverty and Discrimination (3) Prerequisites: ECON 200 and ECON 201 or ECON 205. Theories of poverty and discrimination. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

ECON 381 Environmental Economics (3) Prerequisite: ECON 200, ECON 205, or permission of department. Application of economic theory to problems of environmental quality and management. Theory of economic externalities, common property resources, alternative pollution control measures, and limits to economic growth.

ECON 385 Economics of Natural Resources (3) Prerequisite: ECON 200 or ECON 205. Economic analysis of natural resource problems, with special emphasis on the rate of use of exhaustible resources and the problems posed for the maintenance of growth.

ECON 390 Economics and Public Policy (3) Prerequisites: ECON 200 and ECON 201. Application of economic reasoning to public policy issues, many of which are not exclusively, or even primarily, economic in nature, so as to provide insights into legislative actions, and their implications.

ECON 391 Survey of Urban Economics Problems and Policies (3) Credit will be granted for only one of the following: ECON 391 or ECON 490. Formerly ECON 490. An introduction to the study of urban economics through the examination of current policy issues. Topics may include urbanization of jobs and residences, urban renewal, urban transportation, development of new towns, ghetto economic development, problems in services such as education and police.

ECON 396 Independent Honors Study (3) Prerequisite: Approval of instructor. Normally taken in senior year. Course will explore selected topics in economic theory and its application in depth. Analysis of different research and the development of student skills in research methods. Students will prepare workshops.

ECON 397 Honors Thesis (3) Prerequisites: ECON 396 and candidacy for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

ECON 398 Topics in Economics (3) Prerequisite: ECON 200, ECON 201, and permission of department. Repeatable to 6 credits if content differs. This course is designed to meet the changing interests of the staff. Topics to be chosen in part by the students.

ECON 399 Individual Reading and Research For Undergraduates (1-3) Prerequisite: ECON 200, ECON 201, and permission of department. Repeatable to 6 credits if content differs. By arrangement with individual faculty members. This course is designed for students desiring specialized instruction and guidance in subjects not covered in the course offerings. Before enrollment, the students must secure agreement from an individual faculty member to act as their supervisor. A program of reading, research and evaluation will be worked out between the student and the faculty member.

ECON 401 Current Issues in American Economic Policy (3) Prerequisite: ECON 200 and ECON 201 or ECON 205. Credit will be granted for only one of the following: ECON 301 or ECON 401. Formerly ECON 301. Analysis of current economic problems and public policies. Inflation, unemployment, market power, government regulation, poverty and distribution of income, federal budget and tax policy, environment.

ECON 402 Macroeconomic Models and Forecasting (3) Prerequisite: ECON 305 or ECON 405. Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

ECON 407 Advanced Macroeconomics (3) Prerequisite: ECON 305. An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

ECON 410 Comparative Institutional Economics (3) Prerequisites: ECON 200 and ECON 201 or ECON 205. Comparative study of the development and the economic consequences of different institutional arrangements and the economic and social consequences of these institutions for economic growth in both developed and developing countries. An introduction to the theory and practice of various types of economic systems, with special attention being given to the economic systems of the United States, the Soviet Union, Mainland China, Western and Eastern Europe, and lesser developed countries.

ECON 411 Information and Markets (3) Prerequisite: ECON 205. The role of information in economic activity, and the use of information in the allocation of resources. Topics covered include: 1. information in the personal and firm decision making process; 2. the role of information in public policy decisions; 3. the role of information in legal decision making; 4. the role of information in financial decision making.

ECON 412 Game Theory (3) Prerequisite: ECON 306 and ECON 346 or ECON 416. Credit will be granted for only one of the following: ECON 412 or ECON 416. Formerly ECON 417. A survey of the basic concepts in game theory, with emphasis on how information affects market and exchange outcomes, including insurance, signaling, reputations, and incentive contracts. Studies applications to various markets and policy questions.

ECON 413 Public Choice Public Policy (3) Prerequisite: ECON 306. Credit will be granted for only one of the following: ECON 413 or ECON 422. General supervision will be charge of the course.

ECON 414 Theory of Labor Economics (3) Prerequisite: ECON 305 or ECON 406. Credit will be granted for only one of the following: ECON 414 or ECON 416. Formerly ECON 417. Theories of labor supply and labor demand. Theories of the labor market and labor market policies. Theories of labor economics using EXCEL and SAS.

ECON 415 Health Care Economics (3) Prerequisite: ECON 306 or ECON 406. Credit will be granted for only one of the following: ECON 415 or ECON 416. Theories of health care economics, including the role of providers, patients, and insurance companies. An introduction to the theory and the role of insurance, and competition in relation to problems of public policy.

ECON 416 Industrial Organization (3) Prerequisite: ECON 306 or ECON 406. Credit will be granted for only one of the following: ECON 416 or ECON 417. An introduction to the role of competition and pricing in product differentiation, and the role of technology and limits on health care spending.

ECON 417 Theory of Labor Economics (3) Prerequisite: ECON 306. Credit will be granted for only one of the following: ECON 370 or ECON 471. An analytical treatment of theories of labor supply and labor demand. Marginal productivity, the wage demand, allocation of time in household labor supply models; theory of human capital; earnings differentials; market structure and the efficiency of labor markets; the role of trade unions; discrimination; and unemployment.
ECON 471 Current Problems in Labor Economics (3) Prerequisites: ECON 470 or permission of department. Emphasis on current policy issues. Topics include: the distribution of income; welfare reform and work incentives; unemployment; social insurance; unemployment policy; immigration; trade and labor market policy; international labor market comparisons; and the economics of human resource management.

ECON 476 American Living Standards and Poverty (3) Prerequisites: ECON 304 and ECON 322 or permission of department. Also offered as PUSA 753. Post-World War II trends in U.S. living standards and income inequality. Areas studied include: income, production, distribution, demographics, international competitiveness and the structure (and holders) of debt as they affect the level of U.S. income and income inequality.

EDCI — Curriculum and Instruction

EDCI 273 Practicum in Ceramics (3) Eight hours of laboratory per week. For EDCI majors only. Not open to students who have completed a ceramics course. Formerly EDIT 273. A laboratory course designed to introduce the use of clay and ceramics in a wide variety of educational settings.

EDCI 280 Introduction to Teaching (3) Developmental understanding of the teaching-learning process. Seminar and off-campus experiences. Two hours each week on campus with an arranged six hours each week in schools.

EDCI 288 Special Topics in Teacher Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 300 Discipline Based Art Education (C 6 | Art Methods) (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 390; EDDH 413 and EDDH 420. For art education majors only. Methods of discipline based art education which reflects teaching of art history, aesthetics, art criticism, and art studio. Includes three hours of field work. Basic methods course in art education. fulfills requirements for a special methods course.

EDCI 301 Teaching Art in the Elementary School (3) For elementary and pre-elementary education majors only. Not open to art education majors. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

EDCI 314 Teaching Language, Reading, Drama and Literature with Young Children (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 312; EDDH 313; EGDH 419A. Emphasis on creating a learning environment that fosters interests, provides opportunities for development of the understanding of the child as a reader, writer, speaker, and listener. Includes readings, written and oral assignments, and field experiences. Includes laboratory field experiences.

EDCI 315 The Young Child in the Social Environment (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 390; EDDH 300; and permission of department. Corequisites: EDCI 342; EDCI 352; and EDCI 372. For elementary education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics pertinent to foreign language education.

EDCI 340 Curriculum and Instruction in Secondary Education: English Theatre (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 390; EDDH 300; and permission of department. Corequisites: EDCI 447. For education majors only. Objectives, selection, and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics.

EDCI 342 Curriculum and Instruction in Elementary Education: Language Arts (3) Arts Prerequisites: admission to teacher education program; 2.5 GPA; EDCI 397; EDDH 300; and permission of department. Corequisites: EDCI 322; EDCI 352; EDCI 362; and EDCI 372. For elementary education majors only. Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression. Includes laboratory field experiences.

EDCI 350 Curriculum and Instruction in Secondary Education: Mathematics (3) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI 397; EDDH 300; and permission of department. Corequisites: EDCI 322; EDCI 352; and EDCI 372. For elementary education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics.

EDCI 351 The Teaching of Mathematics: Early Childhood (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 312; EDDH 313; EGDH 419A. Emphasis on helping young children develop mathematical meanings and relationships and problem solving skills. Development of the understanding of the number system and mathematical processes. Includes laboratory field experiences.

EDCI 352 Curriculum and Instruction in Secondary Education: Mathematics (3) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI 397; EDDH 300; and permission of department. Corequisites: EDCI 210; and MATH 211. Corequisites: EDCI 322; EDCI 342; EDCI 362; and EDCI 372. For elementary education majors only. Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory field experiences.

EDCI 355 Field Experience in Secondary Mathematics Education (1) Three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 390; EDDH 300; and permission of department. Corequisites: EDCI 322; and EDCI 352. For elementary education majors only. Provides future elementary school teachers with the understandings and strategies to plan effective teaching instruction. Participants will learn a variety of developmentally appropriate assessment strategies; a) learn a variety of developmentally appropriate assessment strategies; c) learn how to implement a balanced literacy program; d) learn appropriate literacy, intervention and inclusion strategies to assist students with disabilities, and emerging literacy; and e) how to learn and establish and maintain an organized classroom environment that fosters interests, motivation, and positive attitudes/perceptions about all areas of literacy.

EDCI 370 Curriculum and Instruction in Secondary Education: Science (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 413; EDDH 420; and EDCI 390. For education majors only. Pre-service science teachers. Preparing objectives, planning lessons, selecting and organizing for classroom and laboratory instruction, determining appropriate teaching methods, selecting textbooks and other instructional materials, and measuring and evaluating student achievement. Includes laboratory field experiences.

EDCI 371 Computers in the Science Classroom and Laboratory (3) Prerequisites: EDCI 240; and EDCI 241. Designed for teacher education program; 2.5 GPA; EDCI 370 C5: EDCI 470 and EDCI 471. Fundamentals of microcomputer use in science classrooms.

EDCI 372 Curriculum and Instruction in Elementary Education: Science (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 390; EDDH 300; and permission of department. Corequisites: EDCI 322; EDCI 342; and EDCI 362. For elementary education majors only. Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching science to children which help children learn the process and concepts of science. Includes laboratory field experiences.

EDCI 374 The Teaching of Science: Early Childhood (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 312; EDCI 314; EDH 416; EDDH 419A. Corequisites: EDCI 313; EDCI 315; EDCI 316; EDCI 316; EDCI 316; and EDDH 419B. For early childhood education majors only. Objectives, materials, and activities for teaching science to young children. Includes classroom and field experience.

EDCI 375 Field Experience in Science Education (1) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 314; and EDDH 420. For education majors only. This field experience is designed to provide prospective teachers with knowledge of theory and best practice relevant to effective pedagogy, current educational goals, and trends in educational technology with which help children learn the process and concepts of science. Includes laboratory field experiences.

EDCI 380 Curriculum and Instruction: Elementary (3) Focuses on development of educational needs at various age levels, with emphasis upon the activities, materials and methods by which educational objectives are attained.

EDCI 381 Schools and Children (3) Role evaluation of educational activities and other community members as consumers and participants in schools. Not open for credit to students in teacher preparation programs.

EDCI 385 Computers for Teachers (3) Prerequisites: admission to teacher education program; and 2.5 GPA. For education majors only. Credits do not count toward the following: EDCI 385; or EDCI 405; or EDCI 406; or EDCI 407; or EDSP 480. A first-level survey of instructional uses EDCI 385; or EDCI 405; or EDCI 406; or EDCI 407; or EDSP 480. A first-level survey of instructional uses of computer software, and related technology for preservice teachers.

EDCI 390 Principles and Methods of Secondary Education (3) Prerequisites: admission to teacher education program; and 2.5 GPA. Corequisites: EDCI 413 and EDDH 420. For education majors only. Principles and methods of teaching in junior and senior high schools. Instructional problems common to all of the subject fields, considered in relation to the needs and interests of youth, social problems and the central values of society.
EDCI 397 Principles and Methods of Teaching in Elementary Schools (3) Prerequisites: admission to teacher education program; 2.5 GPA. For education majors only. Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools. Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations.

EDCI 400 Field Experience in Art Education (1) Four hours of laboratory per week. Prerequisites: EDCI 390; EDHD 413; and EDHD 420 or permission of department. Corequisite: EDCI 300. For Art Education majors. Practical classroom experience in teaching evaluating the products of art lessons.

EDCI 401 Student Teaching in Elementary School: Art (4-8) Prerequisite: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 300. For art education majors only.

EDCI 402 Student Teaching in Secondary Schools: Art (2-8) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 300. For art education majors only.

EDCI 403 Teaching of Art Criticism in Public Schools (3) Introduction to theories of art criticism. Trips to galleries and museums to view fine arts majors and students from other disciplines.

EDCI 406 Computers, Art and Chaos Theory (3) Prerequisite: permission of department. Computers in art education with focus on chaos theory, fractals as a means to integrate art, math, science in K-12 programs.

EDCI 407 Practicum in Art Education: Three-Dimensional (3) For pre-service and art education majors only. A lecture, studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.

EDCI 415 Methods of Teaching ESL in Elementary Schools (3) Prerequisite: EDCI 434 or permission of department. Analysis of elementary school classroom culture, social contexts, and instructional strategies which foster language development in elementary school content areas (i.e., math, social studies, art, science), consistent with current theories of child second language acquisition. For undergraduate and graduate prospective and current teachers of English to speakers of other languages.

EDCI 417 Bases for English Language Instruction (3) Two hours of lecture and 1/2 day field placement per week. Prerequisite: permission to teacher education program; EDHD 413; and EDHD 420. Provides students with knowledge of current theory, research, and pedagogy focused on the teaching of English to English language learners. Topics include morphology, syntax, semantics, vocabulary, pragmatics, arguments, discourse structure, and English language usage. Exceptional student, inclusion, and diversity issues will be considered.

EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (3) Prerequisites: admission to teacher education program; 2.5 GPA; and EDCI 320 or EDCI 321. Corequisite: EDCI 320 or EDCI 322. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 320. Corequisite: EDCI 420.


EDCI 425 Social Studies and Multicultural Education (3) Seminar in general social science principles applicable to multicultural education. Cultural experiences arranged for each participant.

EDCI 426 Materials and Resources in Social Studies (3) Prerequisite: permission of department. The course will emphasize the identification, appropriate selection, implementation and assessment of materials and resources that promote social studies instruction that is theory based for multiple settings.

EDCI 428 Field Experience in Secondary Social Studies (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 320. Corequisite: EDCI 420. Observation, participation and student teaching experience with focus on the role of the teacher in developing instructional materials, measurement and topics pertinent to English teaching.

EDCI 430 Student Teaching Seminar in Secondary Education: Foreign Language (3) Prerequisites: admission to teacher education program; 2.5 GPA; and permission of department; and EDCI 320. Corequisite: EDCI 431. An analysis of teaching theories, strategies and techniques in the student teaching experience.

EDCI 431 Student Teaching in Secondary Schools: Foreign Language (12) Prerequisites: admission to teacher education program; 2.5 GPA; and permission of department; and EDCI 330. Corequisite: EDCI 430.

EDCI 432 Foreign Language Methods in the Elementary School (3) Methods and techniques for developmental approach to the teaching of modern foreign languages in elementary schools. Development of oral-aural skills in language development.

EDCI 433 Introduction to Foreign Language Methods (3) Prerequisites: EDHD 300 and EDCI 390; or permission of department. Focus on development of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to foreign language education for in-service teachers.

EDCI 434 Methods of Teaching English to Speakers of Other Languages (3) Analysis of approaches to curriculum, current research, theory, and pedagogy of reading and writing to second language students from diverse cultural and linguistic backgrounds. For undergraduate and graduate prospective and current teachers of English to speakers of other languages K-12, adult and university. Required for TESOL certification program.

EDCI 435 Teaching Second Language Reading and Writing (3) Prerequisite: EDCI 434 or permission of department. Analysis of approaches to curriculum, current research, theory, and pedagogy of reading and writing to second language students from diverse cultural and linguistic backgrounds. For undergraduate and graduate prospective and current teachers of English to speakers of other languages K-12, adult and university. Required for TESOL certification program.

EDCI 438 Field Experience in Second Language Education (1) Four hours of laboratory per week; Prerequisites: EDCI 390; EDHD 413, EDHD 420, or permission of department. Corequisite: EDCI 330. For Second Language Education majors only. Repeatable to 3 credits if content differs. Practical experience in multilingual education teaching language classes. Assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 440 Student Teaching Seminar in Secondary Education: English (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 340. Corequisite: EDCI 441. An analysis of teaching theories, strategies and techniques in relation to the student teaching experience.

EDCI 441 Student Teaching in Secondary Schools: English (12) Prerequisites: admission to teacher education program; and EDCI 340. Corequisite: EDCI 440.

EDCI 442 Student Teaching in Secondary Schools: Speech/English (12) Prerequisites: admission to teacher education program; and EDCI 340. Corequisite: EDCI 441.

EDCI 444 Literature for Children and Youth (3) For elementary education and pre-elementary education majors only. Analysis of contemporary children's material. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.

EDCI 447 Field Experience in English, Speech, Theatre in Secondary Schools (3) Prerequisites: EDHD 413 and EDHD 420; and EDCI 390; or permission of department. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to English teaching.

EDCI 448 Field Experience in English, Speech, Theatre in Secondary Schools (5) Prerequisites: admission to teacher education program; 2.5 GPA; EDCI 390; EDHD 413 and EDHD 420. Corequisite: EDCI 340. For education majors only. Practical experience as an aide to a regular teacher in English, speech or drama; assigned responsibilities and participation in a variety of teaching/learning activities.


EDCI 450 Student Teaching in Secondary Schools: Mathematics (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 350; EDCI 457. Corequisite: EDCI 450.

EDCI 451 Student Teaching in Secondary Schools: Mathematics (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 350; EDCI 457. Corequisite: EDCI 450.

EDCI 453 Mathematics in the Elementary School (3) Prerequisites: EDCI 350; EDCI 372; or EDCI 372. Corequisite: EDCI 372. For Elementary Education majors only. A field experience with eight weeks of student teaching at the elementary level and eight weeks at the middle school level.

EDCI 455 Methods of Teaching Mathematics in Secondary Schools (3) Prerequisites: admission to teacher education program; and 2.5 GPA; and permission of department required for post-baccalaureate students. Pre/corequisite: EDCI 450. Corequisite: EDCI 350. For Second Language Education majors only. Practical experience as an aide to a regular English, speech or drama teacher. Assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 462 Reading in the Elementary School (3) Developmental reading instruction, including emergent literacy, literature-based and basal reader programs. Primarily for in-service teachers, grades 1-8.

EDCI 463 Reading in the Secondary School (3) Prerequisites: admission to teacher education program; and 2.5 GPA; permission of department required for post-baccalaureate students. For education majors only. Provides secondary school teachers with understanding the need for an approaches to reading instruction. Students will learn to use a variety of reading assessments in valid reliable manner to make ongoing instructional changes, and to maintain successful classroom practice. We will learn about knowledge, beliefs and related to reading assessment, students, and schooling.

EDCI 464 Reading Instruction and Diagnosis Across Content Areas (3) Prerequisite: EDCI 362 or permission of department for graduate students. In this course we will examine reading assessment theory, reading assessment materials, and reading assessment procedures. We will learn to use a variety of reading assessments in valid reliable manner to make ongoing instructional changes, and to maintain successful classroom practice. We will learn knowledge, beliefs and related to reading assessment, students, and schooling.

EDCI 465 Language, Culture, and Education (3) Prerequisite: permission of department. Focus on the sociolinguistic and psycholinguistic perspectives for the study of language and education; examination of pragmatics, speech act theory, and dimensions of language variation (dialects, code-switching, and registers); implications for educational research and instructional practice.
EDCI 466 Literature for Adolescents (3) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department required.

EDCI 471 Student Teaching in Secondary Schools: Science (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI 370 CS - EDCI 371 and EDCI 470.

EDCI 472 Methods of Teaching Science in Secondary Schools (3) Prerequisites: EDHD 305; EDCI 390; and permission of department. The course will address the identification and determination of appropriate teaching methods, selecting instructional materials, evaluating student achievement, and in-service teachers experience. Includes lab and field experience for in-service teachers.

EDCI 473 Environmental Education (3) Two hours of lecture and three hours of laboratory per week. An interdisciplinary course covering the literature, techniques and strategies of environmental education.

EDCI 474 Science in Early Childhood Education (3) Objectives, methods, materials and activities for teaching science in the early childhood. Primarily for 4-year-old children, nursery school through grade 3.

EDCI 475 Science in the Elementary School (3) Objectives, methods, materials, and activities for teaching science in the elementary school. Primarily for in-service teachers, grades 4-6.

EDCI 476 Teaching Ecology and Natural History (3) An introduction to the teaching of natural history in the classroom and in the field. Ecological principles; resources and instructional materials; curricular materials. Primarily for teachers; park naturalists, and outdoor educators.

EDCI 477 Applications of Technology to Societal Problems (3) Junior standing. Credit will be granted for only one of the following: EDCI 477 or EDIT 477. A study of alternative solutions to a technological nature with respect to such areas as housing, energy, communications, production and waste disposal, water development and pollution control.

EDCI 481 Student Teaching: Elementary (12) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. EDHD 342; EDCI 352; EDCI 362, and EDCI 372. Corequisites: EDCI 464.

EDCI 484 Student Teaching in Elementary School: Music (4-6) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI 342; EDCI 352; EDCI 362, and EDCI 372. Corequisite: EDCI 494. Fullfills elementary teaching requirements in K-12 music education programs.

EDCI 485 Student Teaching in Elementary School: Physical Education (4-8) For EDCI majors only. Fulfills elementary teaching requirements in K-12 physical education.

EDCI 486 Supervision of Student Teachers (1-3) Designed for in-service teachers. The development and refinement of skills in observing, evaluating and conducting conferences with student teachers. Clinical supervision and cooperative problem solving. Required by some school systems for supervision of student teachers.

EDCI 488 Selected Topics in Teacher Education (1-3) Prerequisite: EDCI major or permission of department. Repeatable to 6 credits if content differs.

EDCI 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Corequisite: EDCI 497. Repeatable to 4 credits.

EDCI 491 Student Teaching in Secondary Schools: Health (12) For EDCI majors only.

EDCI 494 Student Teaching in Secondary Schools: Music (2-8) For EDCI majors only.
EDHD 340 Human Development Aspects of the Helping Relationship. An examination of skills and knowledge relevant to the human services. Relating, communicating, and problem-solving with others. In-class training activities and field experiences for acquiring interpersonal competence.

EDHD 350 Human Development Factors in Personal Development (3) Personality dynamics including self-study and group experiences which contribute to individual development and interpersonal growth. Emphasis on factors which enhance optimal personal growth.

EDHD 400 Introduction to Gerontology (3) Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-perceptions that bear on quality of life in later years. For professionals, institutions for elderly, individual elders, their families and care providers.

EDHD 401 Promoting Optimal Aging (3) Prerequisite: EDHD 320, or EDHD 400, or permission of department. Also offered as EDMS 398, credit not to be granted for both. Cognition and Motivation in Reading: Reading in Context. Students will learn the cognitive and motivational aspects of reading and learning from text in subjects of literature, science, history and mathematics. Different structured approaches to using text for content learning are presented. Classroom contexts that enable students to engage productively with diverse texts and internet resources are identified.

EDHD 430 Adolescent Violence (3) Prerequisite: PSYC 100 or EDHD 300 or permission of department. Examination of the roots of violence among adolescents and the extent to which this constitutes a problem in various settings. Research studies on its origins, prevention and intervention and implications for social policy are examined.

EDHD 445 Guidance of Young Children (3) Prerequisite: PSYC 100 or EDHD 306 or permission of department. Practical aspects for helping with children, drawing on research, clinical, and observation. Implications for day care and other public issues.

EDHD 460 Educational Psychology (3) Prerequisite: PSYC 100 or EDHD 306 or permission of department. Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings. (May not be substituted for EDHD 300 by EDHD students in professional programs.)

EDHD 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHD 498 Special Problems in Education (1-3) Prerequisite: permission of department. Available only to students who have definite plans for individual study of approved problems.

EDHD 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and designed for designated groups such as school superintendents, principals and supervisors.

EDMS — Measurement, Statistics, and Evaluation

EDMS 400 Introduction to Educational Statistics (3) Prerequisite: PSYC 100 or permission of department. Use of the computer as a tool in educational research. Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses; testing of hypotheses; one-way analysis of variance; analysis of contingency tables.

EDPL 400 The Future of the Human Community (3) Examination of the future of our social and cultural institutions for education and child rearing, social and family relationships, health and leisure, information exchange, and the provision of food, clothing, and shelter.

EDPL 401 Educational Technology, Policy, and Social Change (3) Junior standing. Formerly EDPL 401. Examines technology as a complex force which influences social change and the educational development of individuals.

EDPL 440 Educational Media (3) Survey of classroom uses of instructional media. Techniques for integrating media into instruction. Includes preparation of a unit of instruction utilizing professional and teacher-produced media.

EDPL 488 Special Topics in Education Policy and Administration (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly EDPL 488. Special and intensive treatment of current topics and issues in education policy and administration.

EDPL 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Formerly EDPL 489. Available only to students who have definite plans for individual study of approved problems.

EDPL 498 Special Problems in Education (1-3) Prerequisite: permission of department. Formerly EDPL 498. Available only to students who have definite plans for individual study of approved problems.

EDPL 501 Educational Media (3) Prerequisite: PSYC 100 or permission of department. Use of the computer as a tool in educational research. Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses; testing of hypotheses; one-way analysis of variance; analysis of contingency tables.
EDSP 402 Field Placement: Special Disabilities I (2-5) Pre- or corequisites: EDSP 401, EDSP 404; or permission of department. Practicum experience in settings serving severely disabled individuals. Enrollment limited to those admitted to severely handicapped specialty area. Field placement for two to five half-days per week.

EDSP 403 Field Placement: Special Disabilities II (2-5) Pre- or corequisites: EDSP 401, EDSP 404; or permission of department. Practicum experience in settings serving severely disabled individuals. Enrollment limited to those admitted to severely handicapped specialty area. Field placement for two to five half-days per week.

EDSP 406 Field Placement I (1-3) Restricted to students with the following major codes: EDSP, 0808B, and 0808P. For EDSP majors only. Field placement for two to three half days.

EDSP 407 Field Placement II: Special Education (1-3) For EDSP majors only. Credit will be granted for only one of the following: EDSP 332; EDSP 407. Formerly EDSP 333. Practicum experience in special education. Field placement for two-three half-days.

EDSP 410 Community-Based Assessment and Curriculum in Special Education (3) For EDSP or 0808P majors only. Functioning of assessment, curriculum development, and instructional methods related to community functioning skills for students with severe disabilities.

EDSP 411 Field Placement: Special Disabilities III (2-5) Prerequisite: EDSP 405. Pre- or corequisites: EDSP 412, and (EDSP 420 or EDSP 460); or permission of department. Practicum experience in settings serving severely disabled individuals. Field placement for two to five half-days per week.

EDSP 412 Vocational and Transitional Instruction for Students with Severe Disabilities Corequisites: EDSP 411 or EDSP 465; or permission of department. Assessment and instructional strategies for developing the vocational and transitional skills of students with severe disabilities.

EDSP 413 Behavior & Classroom Management in Special Education (3) For EDSP or 0808P majors only. Functioning of classroom management, technology, and instructional methods related to community functioning skills for students with severe disabilities.

EDSP 415 Assessment in Special Education (3) Recommended: STAT 100 or SOCY 201. For EDSP or 0808P. Use of applied behavior analysis for assessment of behavior and learning environments. Design of behavior and classroom management of students in special education.

EDSP 417 Student Teaching: Severe Disabilities (4-11) Student teaching, full-time for twelve weeks, with severely disabled children. Limited to special education majors admitted to severely handicapped specialty area. Field placement for two to three half-days per week.

EDSP 423 Assessment in Early Childhood Special Education Corequisites: EDSP 334 and EDSP 335. Assessment experience for infants and young children with disabilities, birth through age eight.

EDSP 424 Field Placement IV: Early Childhood Special Education (2-4) For EDSP or 0808P majors only. Practicum experience in early childhood special education. Field placement for three half days per week.

EDSP 430 Early Intervention: Early Childhood Special Education (3) For EDSP or 0808B majors only. Intervention with infants and young children with disabilities. Focus on moderate and severe disabilities.

EDSP 431 Field Placement V: Early Childhood Special Education (2-4) For EDSP or 0808B majors only. Practicum experience in early childhood special education. Field placement for three half days per week.

EDSP 432 Field Placement III: Middle/Secondary Special Education I (2-5) Pre- or corequisites: EDSP 330, EDSP 403, and EDSP 410; or permission of department. Practicum experience in settings serving severely disabled individuals. Field placement for two to five half-days per week.

EDSP 435 Field Placement IV: Middle/Secondary Special Education (2-4) For EDSP or 0808B majors only. Practicum experience in middle and secondary special education. Field placement for three half days per week.

EDSP 436 Field Placement V: Middle/Secondary Special Education (2-4) For EDSP or 0808B majors only. Practicum experience in middle and secondary special education. Field placement for three half days per week.

EDSP 437 Student Teaching: Early Childhood Special Education (4-11) Student teaching, full-time for twelve weeks, with handicapped infants and preschool children. Limited to special education majors in early childhood special education specialty area.

EDSP 440 Assessment and Instructional Design for the Educationally Handicapped: Cognitive and Psychosocial Development (3) Prerequisites: EDSP 441 and EDSP 456; or permission of department. Pre- or corequisites: EDSP 330 and EDSP 445. Learning styles, cognitive, and problem-solving strategies, and psychosocial development of educationally handicapped individuals. Characteristics, needs, assessment, and instructional methods. Field placement for three half days per week.

EDSP 441 Inclusive Practices in the Schools (3) Corequisite: EDSP 447 or EDSP 461. Educational practices regarding inclusive education in the schools for students with and without disabilities.

EDSP 450 Introduction to Secondary/Transition Special Education (3) Corequisites: EDSP 446; EDSP 447; or permission of department. Practicum experience in settings serving educationally handicapped individuals. For EDSP or 0808P majors only. Placement for two to four half-days per week.

EDSP 451 Curriculum and Instruction: Elementary Special Education (3) For EDSP or 0808B majors only. Methods for instruction of students with disabilities in the general education curriculum. Collaboration with other professionals is included.

EDSP 453 Methods and Models of Instruction: Elementary Special Education (3) For EDSP or 0808P majors only. Focus on models and methods of instruction responsive to the cognitive, linguistic, and cultural characteristics of elementary students in special education.

EDSP 454 Field Placement IV: Elementary Special Education (2-4) For EDSP or 0808B majors only. Practicum experience in elementary special education. Field placement for three half days per week.

EDSP 455 Assessment in Elementary Special Education (3) For EDSP or 0808P majors only. Focus on selection, administration, and interpretation of assessment tools and results for designing instruction and evaluating progress of elementary students in special education.

EDSP 456 Field Placement V: Elementary Special Education (2-4) For EDSP or 0808P majors only. Practicum experience in elementary special education. Field placement for three half days per week.

EDSP 457 Student Teaching: Educationally Handicapped (4-11) For EDSP majors only. Student teaching, full-time for twelve weeks, with educationally handicapped individuals.

EDSP 460 Introduction to Secondary/Transition Special Education (3) Prerequisite: EDSP 446 or permission of department. Practicum experience in secondary/transition programs for individuals with disabilities. Field placement for two half-days per week.

EDSP 462 Vocational Assessment and Instruction in Special Education (3) Students with Severe (3) Prerequisite: EDSP 461 or permission of department. Practicum experience in settings serving severely disabled individuals. Field placement for two half-days per week.

EDSP 463 Field Placement: Secondary Transition I (2-4) Pre- or corequisite: EDSP 460. For EDSP majors only. Practicum experience in secondary/transition programs for individuals with disabilities. Field placement for three half-days per week.

EDSP 464 Secondary and Transition Methods in Special Education (3) Prerequisite: EDSP 462 or permission of department. Current secondary/transition programs. Current special education issues and transition methods including work-study programming, job development, and job coaching.

EDSP 465 Field Placement: Secondary Transition I (2-4) Prerequisite: EDSP 463. Pre- or corequisite: EDSP 464. For EDSP majors only. Practical experience in secondary/transition programs for individuals with disabilities. Field placement for three half days per week.

EDSP 466 Issues and Models of Instruction: Middle/Secondary Special Education (3) For EDSP or 0808B majors only. Current issues, learning environments, and instructional models in middle/secondary special education. Emphasis on career and vocational education, self-determination, and transition.

EDSP 467 Student Teaching: Secondary Transition (4-11) For EDSP majors only. A full-time twelve week field assignment in a setting providing secondary transition services to individuals with disabilities. Enrollment is limited to special education majors who have successfully completed coursework in the secondary transition area of specialization.

EDSP 470 Introduction to Special Education (3) Designed to give an understanding of the needs of all types of exceptional children.

EDSP 474 Assessment in Middle/Secondary Special Education (3) For EDSP or 0808B majors only. Cognitive, educational, and social assessment for students with disabilities. Emphasis on interpretation of assessment results and case management practices.
EDUC — Education

EDUC 388 Special Topics in Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDUC 498 Selected Topics in Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Current topics and issues in education.

ENAE — Engineering, Aerospace

ENAE 100 The Aerospace Engineering Profession (1) Recommended: ENES 100 and MATH 140. Overview of salient aspects of professional practice of aerospace engineering. Introduction to the range of technical expertise needed to succeed in the profession and the objectives of the various parts of the aerospace engineering program at UMCP in supporting students’ efforts in gaining the required knowledge and skills, familiarization with departmental faculty and their areas of research, creation of links with other students, professional society student chapters, and available resources. Discussion of ethics, professionalism, and requirements, and their interactions with technical developments.

ENAE 202 Aerospace Computing (3) Two hours of lecture and two hours of laboratory per week. Also offered as ENCE 202. Credit will be granted for only one of the following: ENAE 202 or ENCE 202.

ENAE 311 Aerodynamics I (3) Recommended: ENES 100 and ENAE 282. For ENAE majors only. Credit will be granted for only one of the following: ENAE 311 or ENAE 312. Aerodynamics of inviscid incompressible flows. Aerodynamic forces and moments. Fluid statics/buoyancy force. Vorticity, circulation, the stream function and potential. Bernoulli’s and Laplace’s equations. Flows in low speed wind tunnels and airspeed measurement. Potential flows involving sources and sinks, doublets, and vortices. Development of the theory of airflow around wings.

ENAE 312 Viscous Flow and Aerodynamic Heating (3) Prerequisite: ENAE 311. ENAE majors only or permission of department. Derivation of the conservation equations and application to viscous flows while the energy equation is simplified for conduction in solids. Exact and approximate solutions for steady and unsteady conduction.


ENAE 423 Control of Aerospace Systems (3) Prerequisite: ENAE 422. ENAE majors only or permission of department. Analysis of eigenvalues and eigenfunctions of single and multiple degrees of freedom systems, finite element modeling, wing divergence, aileron reversal, wing and panel flutter.

ENAE 424 Design and Manufacture of Composite Prototypes (3) Two hours of lecture and three hours of laboratory per week. ENAE 202 and ENAE 283; ENES 221; MATH 246; and PHYS 263. ENAE majors only or permission of department. Kinematics and dynamics of dimensionally motion of point masses and rigid bodies with introduction to more general systems. Primary emphasis on Newtonian methods with introduction to Lagrange’s equations and Hamilton’s principle. Practice in numerical solutions of equations of motion using MATLAB or similar high level computer mathematics systems.

ENAE 432 Aerospace Instrumentation and Experimentation (3) Prerequisite: ENAE 323. ENAE majors only or permission of department. Course is designed to provide oral and written reports of the design and manufacture of a composite prototype.
ENAE 441 Space Navigation and Guidance (3) Prerequisites: ENAE 322; ENAE 414. ENAE majors only or permission of department. Principles of navigation. Celestial, radio, and inertial navigation schemes. Navigational and guidance requirements for aviation, and attitude and orbit determinations. Fundamentals of communications and information theory. Link budgets, antennas and telemetry systems.

ENAE 455 Aircraft Propulsion and Power (3) Prerequisite: ENAE 414. ENAE majors only or permission of department. Thermodynamics, stoichiometry, aerothermodynamics of fuels and propellants, operating principles of piston, jet, ramjet, and other variations of airbreathing aircraft power units.

ENAE 457 Space Propulsion and Power (3) Prerequisites: ENAE 311 and PHYS 263. ENAE majors only or permission of department. Application of fundamental measuring techniques to measurement in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experiments.

ENAE 464 Aerospace Engineering Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: ENAE 311; ENAE 322; ENAE 432; and ENAE 362. ENAE majors only or permission of department. Application of fundamental measuring techniques to measurement in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experiments.

ENAE 471 Aircraft Flight Testing (3) Prerequisites: ENAE 311 and ENAE 414; Pre-and corequisite: ENAE 403; Corequisites: ENAE 414. For ENAE majors only. Introduction to aircraft flight testing and design estimation of performance. Introduction to aerodynamic concepts in aerodynamics, dynamics and control as it relates to flight testing and design of aircraft. Specific emphasis will be placed on single engine general aviation type aircraft.

ENAE 480 Principles of Aircraft Design (3) Prerequisites: ENAE 322; ENAE 362; ENAE 432; ENAE 438; ENAE 440. ENAE majors only or permission of department. Aircraft design principles blending synthesis and analysis. The iterative nature of the design process. Aerodynamic elements. Aerodynamic performance calculation and optimization. Design of aircraft including payload, crew and avionics provisions, propulsion, propulsion and sizing, aerodynamic configuration optimization, mass properties, stability and control characteristics, and vehicle subsystems. Individual student projects in aircraft design.

ENAE 482 Aeronautical Systems Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENAE 311; ENAE 432; ENAE 436; and ENAE 460. Senior standing. For ENAE majors only. Senior capstone design course in the aeronautics track. Introduction of computerized methods for sizing and performance analysis. More comprehensive methods to predict weight, aerodynamics and propulsion system design. Consideration in design disciplines such as vulnerability, maintainability, producibility, etc. Groups of students will complete, brief and report on a major design study to specific requirements.

ENAE 483 Principles of Space Systems Design (3) Prerequisites: ENAE 235; ENAE 322; ENAE 432; ENAE 438; ENAE 440. ENAE majors only or permission of department. Principles of space systems analysis and vehicle design. Launch vehicle performance analysis and application. Design of vehicle systems including avionics, power, propulsion, life support, human factors, structures, actuator and mechanisms, and thermal control. Design processes and design synthesis. Individual student projects in vehicle design.

ENAE 484 Space Systems Design (3) Three hours of lecture and six hours of discussion/recitation per week. Prerequisites: ENAE 423; ENAE 441; ENAE 457; and ENAE 483. For ENAE majors only. Senior capstone design course in the space track. Group preliminary design of a space system, including system and subsystem design, configuration control, risk analysis, system life cycle and development. Course also emphasizes written and oral engineering communications.

ENAE 488 Topics in Aerospace Engineering (1-4) Technical elective taken with the permission of the student advisor and instructor. Lecture and conference courses designed to extend the student’s understanding of aerospace engineering. Current topics are emphasized.

ENAE 499 Elective Research (1-3) Prerequisites: senior standing in ENAE major and permission of department, instructor, and advisor. May be repeated to 6 credits. Original research projects terminating in a written report.

ENBE 100 Basic Biological Resources Engineering (3) For non-ENBE majors. Formerly ENAG 100. An introduction to the applications of engineering concepts to biology, agriculture, and environment. Topics include quantification measurements, mechanical, thermal, fluid, and electrical principles.

ENBE 110 Introduction to Biological Resources Engineering (3) Three hours of lecture and two hours of laboratory per week. Prerequisites: CHEM 103 and (CHEM 104 or CHEM 113). Also offered as NRMT 451. Credit will be granted for only one of the following courses: ENBE 110 or NRMT 451. Hands-on experience with techniques for assessing physical, chemical, and biological characteristics of surface waters, including streams, lakes, and wetlands. Emphasis is placed on the investigation of the effects of water quality on ecosystem structure and function.

ENBE 453 Introduction to Biological Materials (3) Prerequisite: ENES 220 or equivalent. Basic engineering properties of biological materials, including animal tissues and plant materials, and of traditional engineering materials such as metals, ceramics, alloys, and polymers. Course includes limited laboratory experiences.

ENBE 454 Biological Process Engineering (4) Prerequisites: MATH 246 and ENME 342 or equivalent, and one semester of experience in electrical or biomedical instrumentation. Fluid, heat, and mass transfer with applications in medicine, environment, biotechnology, food, agriculture, and other biosystems. Design of solutions to current problems in biological engineering is emphasized.

ENBE 455 Basic Electronic Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: PHYS 142 or equivalent, MATH 246, and ENBE 241. Familiarization with basic electronic circuits and the ability to produce simple electronic designs.

ENBE 456 Biomedical Instrumentation (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENBE 305. Two hours of lecture and two hours of laboratory per week. Review of both natural and man-made water resource systems. Basics of water quality and waste water treatment.

ENBE 234 Principles of Erosion and Water Control (3) An introduction to principles of estimating runoff and erosion. Engineering principles necessary to control erosion and runoff from agricultural areas. For non-engineering students.


ENBE 241 Computer Use in Biosource Engineering (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Application of computer technology to biological and natural resource systems. Design to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

ENBE 305 Farm Mechanics (2) For agricultural education majors only. Formerly ENAG 305. Two hours of lecture and two hours of laboratory per week. A practical farm mechanics laboratory course in which directed lab exercises are performed. Course is designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

ENBE 315 Energy: Its Effects on Agriculture and Food (3) Formerly ENAG 315. Introduction to the current energy problems in agricultural production and food supply. Energy issues, alternate sources of energy, energy conservation practices, possible solutions and limitations.

ENBE 388 Honors Thesis Research (3-6) Prerequisite: ADMISSION TO AGNR OR ENGR HONORS PROGRAM, Minimum GPA 3.6. Undergraduate, honors thesis research conducted under the direction of an ENBE faculty member in partial fulfillment of the requirements of the ENBE 485 or ENBE 486 Honors Program. The thesis will be defended to a faculty committee.

ENBE 414 Mechanics of Food Processing (4) Prerequisite: PHYS 121. Formerly ENAG 414. Three lectures and one laboratory per week. Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

ENBE 415 Bioengineering Exercise Response (3) Prerequisite: Math 248 or permission of department. Exercise physiology in quantitative terms. Modeling and prediction of cardiovascular, respiratory, thermoregulatory, biomechanical, and metabolic aspects of human exercise responses.

ENBE 422 Water Resources Engineering (3) Prerequisite: ENME 342 or ENCE 330; or permission of department. Formerly ENAG 422. Applications of engineering and soil sciences in erosion control, drainage, irrigation and watershed management. Principles of agricultural, water, and waste water conveyance systems and conveyance systems.

ENBE 435 Aquacultural Engineering (3) Prerequisite: Algebra, ability to read and interpret graphical material and one semester each of college physics and college chemistry, and permission of department. Formerly ENAG 435. The course will be designed to meet the curricula of undergraduate design, procedures and professional concerns will be presented. Students will begin planning and designing their capstone project. One course in human physiology or permission of department. Formerly ENBE 486. Credit will not be awarded until satisfactory completion of ENBE 486.

ENBE 486 Capstone Design II (2) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENBE 485 taken in the immediately preceding semester. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. A complete, comprehensive, and professional design project will be completed by the student. Credit will be awarded for only one of ENBE 485 and ENBE 486 will be awarded until satisfactory completion of ENBE 486.

ENBE 488 Special Topics in Biological Engineering (1-4) Prerequisite: permission of department. Lecture and conference courses designed to extend the student’s understanding of biological engineering. Current topics are emphasized.
ENBE 489 Special Problems in Biological Engineering (1-3) Prerequisite: permission of laboratory for student will select an engineering problem and prepare a technical report. The problem may include design, experimentation, and/or data analysis.

ENBE 499 Special Problems in Agricultural Engineering Technology (1-3) Prerequisite: permission of department. Formerly ENAG 499. Not acceptable for majors in agricultural engineering. Problems assigned in proportion to credit.

ENCE — Engineering, Civil

ENCE 202 Computational Methods in Civil Engineering I (3) Prerequisite: MATH 141, ENES 102, ENES 100, and permission of department. Formerly ENCE 201. Introduction to basic concepts of solution of engineering problems. Spreadsheet and computational/symbolic processing packages are introduced in the context of engineering applications, and example problems are solved using a variety of computer-based tools (structure programming, spreadsheet, and computational/symbolic processing software packages).

ENCE 300 Fundamentals of Engineering Materials (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 202, ENES 102, probability and statistics course, and permission of department. Formerly ENES 220 and permission of department. Probabilities and properties of the principal materials used in civil engineering. Students will select the properties, interpretation of test results and of specifications.

ENCE 302 Probability and Statistics for Civil Engineers (3) Prerequisite: ENCE 203, MATH 246, and permission of department. Introductory probability and statistics course: probability and descriptive statistics, random variables, probability distributions, confidence intervals, and hypothesis testing.

ENCE 315 Introduction to Environmental Engineering (3) Prerequisite: CHEM 103 or CHEM 133; PHYS 161, and permission of department. Physical, chemical, and biological systems relating to the quality of land, water, and air environments. Current environmental pollution problems will be examined and methods of pollution abatement discussed.

ENCE 320 Engineering Project Management (3) Prerequisite: permission of department. Course is designed to expose students to the techniques of engineering project management and to develop analytical skills necessary on the management side of engineering. Includes economic analysis, project screening and selection, organizational and project structure, scheduling, budgeting, resource management, life cycle costing, and project control.


ENCE 353 Introduction to Structural Analysis (3) Prerequisite: ENES 220 and permission of department. Corequisite: ENCE 353. Credit will be granted for only one of the following: ENCE 353 or ENCE 355. Formerly ENCE 255. Methods of analysis of statically determinate and indeterminate structures for fixed and moving loads. Equations of equilibrium and compatibility, influence lines, shear and moment envelopes, analysis of forces and deflections in structures by methods of moment distribution, consistent deformation, and virtual work.


ENCE 370 Fundamentals of Transportation Engineering (3) Prerequisites: CHEM 121; permission of department. Engineering problems of transportation by highways, airways, pipelines, railways, and waterways. Elementary development of traffic and functional consideration of routes and terminals.


ENCE 420 Construction Equipment and Methods (3) Prerequisite: ENCE 202 and permission of department. Senior course. Design and selection of equipment and methods for construction of projects, including earthmoving, paving, steel and concrete construction, formwork, trenching, and excavation. Tunneling, site preparation and organization. Design of formwork, trench supports, and cofferdams.

ENCE 423 Project Estimating, Planning and Control (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 320 and permission of department. Application of planning and scheduling techniques for construction work; planning, estimating, time and cost tradeoffs; cost estimating, cost indices, parametric estimates, unit price estimates.


ENCE 430 Flow in Open Channels and Conveyance Structures (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 202, and permission of department. Application of theoretical, experimental and computer simulation techniques in the design of open channels and conveyance systems, including transitions, spillways, culverts, wier bridges, and bridge openings. Uniform and non-uniform flows under subcritical or supercritical conditions. Analysis of unsteady, spatially varied overland and channel flows. Laboratories will emphasize techniques to improve understanding of complex flow phenomena and to provide design information.

ENCE 431 Surface Water Hydrology (3) Prerequisite: ENCE 425. Basic hydrologic elements of the physical processes of the hydrologic cycle. Hydrometeorology, concepts of weather modification, evaporation and transpiration infiltration and evapotranspiration, floods, river flow, reservoirs, requirements, emphasis on process simulation as a tool in the water resource development.

ENCE 432 Ground Water Hydrology (3) Prerequisite: ENCE 330 and permission of department. Concepts related to the development of the science, groundwater hydrodynamics of flow through porous media, hydraulic of wells, artificial recharge, sea water intrusion, basin-wide ground water development.

ENCE 433 Environmental Engineering Analysis (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: CHEM 121, ENES 221, CHEM 232, and permission of department. Theoretical and analytical techniques used in environmental engineering. Emphasis on quantitative, physical, hydrochemical and organic and chemical analysis as applied to chemical analysis of water.

ENCE 435 Sanitary Engineering Analysis and Design (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: ENES 221, ENES 330, CHEM 232, and permission of department. The application of sanitary analysis and fundamental principles to the design and operation of waste and water waste treatment plants and the control of stream pollution.

ENCE 436 Drinking Water Treatment (3) Prerequisites: ENCE 315, CHEM 232, and permission of department. Basic theory and practical design considerations for unit processes involved in drinking water treatment. The physicochemical operations considered include coagulation/flocculation, sedimentation, filtration, adsorption, ion exchange, aeration, and disinfection.

ENCE 440 Engineering Soil Tests (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 340 and permission of department. Review of major soil tests and their interpretation for engineering purposes. Engineering classification, (index, plasticity, specific gravity), permeability and seepage properties, insitu and lab density/moisture tests, soil strength (penetrometers, vane and triaxial), direct shear and triaxial) and compressibility characteristics.

ENCE 441 Soil-Foundation Systems (3) Prerequisite: ENCE 340 and permission of department. Review of classical lateral earth pressure theories, analysis of braced excavation systems, cantilever and anchored sheet piling, design bearing capacity of shallow foundations (footings and mats) design of deep pile foundations to include pile capacity and pile group action.

ENCE 442 Highway and Airfield Pavement Design (3) Prerequisite: ENCE 340 and permission of department. Principles relative to the design, construction and rehabilitation of highway and airfield pavement systems. Introduction to design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

ENCE 454 Design of Concrete Structures (3) Prerequisites: ENCE 353, ENCE 355, and permission of department. Formerly ENAG 494. Combined bending and compression. Introduction to design and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

ENCE 455 Design of Steel Structures (3) Prerequisites: ENCE 353, ENCE 355, and permission of department. Behavior and design of steel members subjected to fatigue, combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

ENCE 463 Engineering Economics and Systems Analysis (3) Prerequisites: ENCE 202, ENCE 203, and permission of department. Development of the principles of capital budgeting, the economic principles to engineering problems. Evaluations of design alternatives. Deterministic modeling and optimization techniques in civil engineering applications simulation modeling.

ENCE 465 Geographic Information Systems for Planning and Design Models (3) Prerequisites: ENCE 202, ENCE 203, and permission of department. Senior standing. Application of computer-aided techniques to develop, manage, and interpret multi-dimensional data bases required for large scale projects in transportation, water resources, and environmental planning. Use of computer aided techniques to provide comprehensive analysis of conventional or computer assisted information. Credibility of distributed simulation models. Use of topographical and navigational information for site analysis and site modeling for computer applications.

ENCE 466 Design of Civil Engineering Systems (3) One hour of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisites: ENCE 353 or ENCE 355, ENCE 315, ENCE 330, ENCE 340, ENCE 370 and permission of department. Senior standing. A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Requirement of design constraints including safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.

ENCE 470 Highway and Traffic Engineering (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 370 and permission of department. Highway location, design, construction and maintenance. Concepts of traffic engineering, traffic flow theory and traffic operations and management.
ENEE 312 Semiconductor Devices and Analog Electronics (3)
Prerequisite: ENEE 302 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. General physical operation of electronic devices, state space equations for continuous systems, time and frequency domain analysis of signals and linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

ENEE 324 Engineering Probability (3) Prequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Axioms of probability; conditional probability and Bayes' rules; random variables, probability distributions and densities: functions of random variables: weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

ENEE 350 Computer Organization (3) Prequisite: ENEE 244 and completion of all lower-division technical courses in the EE curriculum. See above note. For 09090 and 09991 majors only. Not open to students who have completed ENEE 250. Formerly ENEE 250. Structure and organization of digital computers, central and control circuitry, instruction formats, addressing modes, assembly language programming, Elements of system software, subroutines and their linkages.

ENEE 380 Electromagnetic Theory (3) Prerequisite: MATH 241 and PHYS 263 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electric and magnetic field lines, dielectric materials, capacitance, boundary value problems, BIOT-SAVART law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, induction, the magnetic circuit, and Maxwell's equations.

ENEE 381 Electromagnetic Wave Propagation (3) Prerequisite: ENEE 380 and completion of all lower-division technical courses in the EE curriculum. See above note. For ENEE majors only. The electromagnetic spectrum: Review of Maxwell's equations; the wave equation potentials, Poisington's theorem, relationship between circuit theory and fields; propagation of electromagnetic waves in homogenous media and at interfaces; transmission line theory, waveguides, radiation and antennas.

ENEE 397 Digital Electronics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENEE 302 (Technical Math 271) or ENEE 397. Formerly 09090 majors only. Not open to students who have completed ENEE 312 prior to Fall 1998; ENEE 302 if taken Fall 1998. Credit will be granted for only one of ENEE 397 or ENEE 302. Formerly 09991 majors only. Circuit and system level design of digital systems, including VLSI, clocking, and power supply design. Analysis of communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling and reconstruction, modulation and demodulation; digital communication systems pulse code modulation, phase shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.

ENEE 420 Digital Signal Processing (3) Prequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Sampling as a modulation process; aliasing; the sampling theorem; the Z-transform and transform pairs; stability, causal systems, causality and stability; discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT; analog-to-digital and digital-to-analog conversion; effects of quantization and finite-word-length arithmetic.

ENEE 426 Communication Networks (3) Prerequisite: ENEE 324 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. The main design issues associated with network architecture and protocols for computer and general communication networks. Application of analytical tools of queuing theory to design problems in such networks. Review of proposed architectural approaches. Details implementation of protocols and inter-network communication.

ENEE 428 Communications Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 324 and completion of all lower-division technical courses in the EE curriculum. See above note. Corequisite: ENEE 420 or ENEE 425. For ENEE majors only. Complete project design. Exploring the signal processing and communication systems theoretical concepts presented in ENEE 420 Communication Systems and ENEE 425 Digital Signal Processing by implementing them on actual DSP based hardware in real-time.

ENEE 434 Introduction to Electrical Processes, Structure and Function (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. Concepts, theoretical and experimental probing of brain anatomy and physiology for understanding the human brain structures and functions from an engineering viewpoint. Bioelectric phenomena of cells and electrical circuit functional equivalences as signal processing components, and neural coding and of sensory events, central nervous system processing of sensory information and correlated electrical signals, control of effector organs, models of neurons, and digital computers. Application of theory to problems in electrical engineering.

ENEE 440 Microprocessors (3) Prerequisite: ENEE 350 and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Selected topics of current importance in signal processing.

ENEE 444 Computer Design (3) Prequisite: ENEE 350 and completion of all lower-division technical courses in the EE curriculum. Credit will be granted for either ENEE 444 and ENEE 445 or ENEE 444 and ENEE 459. Restricted to students who have completed ENEE 445. Formerly ENEE 449. The goal of this course is to present the theory, design, implementation and analysis of computer operating systems. Through classroom lectures, homework assignments and computer projects, students learn the fundamentals of concurrency, and process management, interprocess communication and synchronization. Implementation of a full memory management, input/output devices, file systems, and protection and security in operating systems. Options topics include process scheduling, protocols, computer security, and real-time operating systems.

ENEE 450 Discrete Structures (3) Prerequisite: ENEE 350 and completion of all lower-division technical courses in the EE curriculum. See above note. Modern algebra with applications to computer and communications hardware. Relations, mappings, groups, rings and fields. Boolean algebras and lattice theory. Applications to digital logic design, computer arithmetic and error-correcting codes.

ENEE 459 Topics in Computer Engineering (1-3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in computer engineering.

ENEE 460 Control Systems (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. For ENEE majors only. Mathematical models for control system components. Transform and time domain methods for linear control systems. Laplace transforms, bode diagrams, root loci, and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled-data systems.
ENEE 461 Control Systems Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE 302 and ENEE 460 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. Senior standing. Prerequisite: ENEE 302 and completion of all lower-division technical courses in the EE curriculum. See above note. Linear system, student’s understanding of feedback control systems and to familiarize him with the characteristics and limitations of real control systems such as feedback design, building servomechanisms, and will conduct analog and hybrid computer simulations of control systems.

ENEE 462 Systems, Control and Computation (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Matrix algebra, state space analysis of discrete systems, state space analysis of continuous systems, computer algorithms for circuit analysis, optimization and system simulation.

ENEE 463 Digital Control Systems (3) Prerequisites: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Linear control theory, digital control systems, basic approaches. Syllabus includes sampling theory, state space models, digital control, analog to digital conversion, zero and pole placement, stability and control systems with feedback.

ENEE 468 Design and Control of a Walking Robot (3) One hour of lecture and two hours of discussion/reception per week. Prerequisite: ENEE 322. Junior standing. For ENEE 468E. Prerequisite: ENEE 468E. Introduction to the techniques for the design and analysis of linear control systems and implementation of control systems using digital technology. Topics include linearization, solution of linearized equations, state space analysis, computer simulations of control systems.

ENEE 469 Topics in Control (1-3) Prerequisites: permission of instructor, and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of times if credit is different. For 09090 and 09991 majors only. See above note.

ENEE 472 Electric Machines and Actuators (3) Prerequisite: ENEE 322 and ENEE 390; and completion of all lower-division technical courses in the EE curriculum. See above note. Linear systems, stability, numerical methods in power system analysis.

ENEE 473 Electrical Machines Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. Experiments involving single phase and three phase AC and DC machines, eddy current losses, transformers, induction motors, synchronous generators.

ENEE 474 Power Systems (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Interconnected power systems, transmission lines, load flow, commitments, power system dynamics, critical elements. Three phase networks, models, load flow.

ENEE 475 Power Electronics (3) Prerequisite: ENEE 302 and completion of all lower-division technical courses in the EE curriculum. See above note. Linear systems, stability, numerical methods in power system analysis.


ENEE 480 Fundamentals of Solid State Electronics (3) Prerequisites: permission of instructor, and completion of all lower-division technical courses in the EE curriculum. See above note. Crystal structure and materials preparation; carrier transport; band theory; intrinsic and extrinsic semiconductor properties; band structure of metals, insulators, and semiconductors; field effect transistors; PN junctions; bipolar transistors; fabrication of devices.

ENEE 481 Antennas (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the concepts of radiation, generalized far field formulas; antenna theorems and formulas; array analysis; power-flux methods; planar arrays; aperture antennas; terminal impedance; propagation.

ENEE 482 Design of Active and Passive Microwave Devices (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Design and operating characteristics of microwave devices. The passive components include waveguides, resonators, and antennas. The active devices include klystrons, magnetrons, gyrotrons, and free electron lasers.

ENEE 484 Design of Charged Particle Devices (3) Prerequisite: ENEE 381 or permission of department and completion of all lower-division technical courses in the EE curriculum. See above note. Senior standing. For ENEE majors only. Underlying physical principles and design concepts of a variety of charged particle devices such as electron and ion sources, electric and magnetic lenses, high power microwave tubes, and particle accelerators.

ENEE 485 Loudspeaker Design (3) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 204 and ENEE 206 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. Hands on experience in performing measurements in optics and electro-optics. Basics of optics, light Detectors, Fourier optics, gratings and spectrometers. pulsed dye lasers, fiber optics, electro-optics, and acousto-optics.

ENEE 489 Topics in Electrophics (1-3) Prerequisites: permission of instructor, and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in electrophysics.

ENEE 496 Lasers and Electro-Optic Devices (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. For ENEE majors only. Modern physical optics, Gaussian beams, optical resonators, optical waveguides; theory of laser oscillation, rate equations; common laser systems. Selected modern opto-electronic devices like diode lasers, semiconductor lasers, Role of lasers and optoelectronics in modern technology.

ENEE 498 Topics in Electrical Engineering (1-3) Prerequisites: permission of instructor and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to any number of credits if content differs. Refer to ENEE 488.

ENEE 499 Senior Projects in Electrical Engineering (1-3) Hours to be arranged. Prerequisites: permission of instructor and department and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to any number of credits if content differs. For 09090 majors only. Formerly ENEE 488. Selected topics of current importance in electrical engineering.

ENEE 500 Introduction to Engineering Design (3) One hour of lecture, two hours of laboratory, and two hours of discussion/reception per week. Prerequisites: MATH 140 and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to any number of times if credit is different.

ENES 100 Introduction to Introduction to Engineering Design (3) One hour of lecture, two hours of laboratory, and two hours of discussion/reception per week. Prerequisite: MATH 101 or high school equivalent. An introduction to technology for non-technical majors. Structure of material, electronic materials, electricity and electric circuits, computing circuits and devices, communication systems, radar and other modern technological devices.

ENES 121 The World of Engineering (3) Introduction to engineering and its influence on the way we live. Study of the relationship between engineering and society. Coverage of history and technology from the past to the present and a look into the future.

ENES 180 Dialogue with the Dean (1) One hour of lecture per week. For new transfer and freshmen Engineering majors only. Introduction to Engineering as a Profession, Overview of Martin Institute, School of Engineering and Clark School Education Programs, The Future of Engineering and Engineering Education Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, What the corporate sector expects from a new engineering graduate.

ENES 181 Dialogue with the Dean (1) Prerequisite: New students - Transfers and Freshmen. For ENGR majors only. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education Programs, The Future of Engineering and Engineering Education Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, What the corporate sector expects from a new engineering graduate.

ENES 190 Introduction to Design and Quality (4) Three hours of lecture and two hours of discussion/reception per week. Prerequisite: permission of College. Also offered as BMGT 190. Expose engineering and business students to the principles of total quality, using experiential team learning and technology application. First of four courses in total.

ENES 220 Mechanics of Materials (3) Prerequisites: ENES 102 and MATH 141; and PHYS 161. For engineering majors only (not including ENEE majors). Stress and deformation of solid objects, shapes, stress and strain, and behavior of various materials, including metals, ceramics and composites.

ENES 388 Engineering Honors Seminar (1) Three hours of lectures per week. Prerequisite: ENEE 101 and ENEE 109. An introduction to the design and implementation of algorithms to solve engineering problems using digital computers. Analysis of problems fundamental to engineering design, construction and diagrammatic description of effective procedures for solving them and implementing and testing these solutions in a common high-level engineering oriented language such as FORTRAN. Techniques for data input and storage, selection of relevant numerical and non-numerical problem solutions, and the efficient ordering of data for meaningful output presentation.

ENES 390 Methods for Measuring Quality (3) Prerequisite: BMGT 190 or ENES 190. Also offered as BMGT 290. Provides engineering and business students an understanding of the need and use of measurement techniques that lead to continuous improvement. The second course of four courses in total.

ENES 399 Senior Projects in Engineering (3) One hour of lecture and two hours of laboratory per week. Prerequisite: MATH 141. Introduction to the design and implementation of algorithms to solve engineering problems using digital computers. Analyze and synthesis of fundamental problems and applications of algorithms for solving them and implementing and testing these solutions in a common high-level engineering oriented language such as FORTRAN. Techniques for data input and storage, selection of relevant numerical and non-numerical problem solutions, and the efficient ordering of data for meaningful output presentation.
ENES 405 Power and the Environment (3) Intended for seniors in the energy engineering. Not considered a technical elective for engineering majors. An introduction to the power needs of society. The interrelationship between man’s use of energy and the effect on the eco-system. Introduction to the techniques of power production with special emphasis on nuclear- and fuel-based power plants.

ENES 435 Product Liability and Regulation (3) Junior standing. Key topics include, biotechnology, safety regulation, federal legislation, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, fire control, earthquakes and biological technology.

ENES 489 Special Topics in Engineering (3-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in engineering.

ENES 490 The Total Quality Practicum (3) Prerequisite: BMGT 390 or ENES 390. Also offered as BMGT 490. Capstone course for the four course total quality program. Based on a major project undertaken by student teams in an industry environment emphasizing integrating aspects of total quality, each project will be supervised by a joint faculty industry team with differing areas of expertise.

ENES 508 Engineering Professional Development for Teachers (3-6) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENES 300, ENME 320 or ENME 232) and (ENFP 300, ENCE 330 or ENFP 350). Basic systems approach to the broad field of engineering majors only. Repeatable to 6 credits if content differs. An introduction to the fundamental concepts that underlie system design and the process of designing and solving technological problems and in design work. Problems in experimental analysis are demonstrated through laboratory experiments. The laboratory work provides the basis for introductory design.

ENFP — Engineering, Fire Protection

ENFP 108 Hot Topics in Fire Protection Engineering (1) Repeatable to 2 credits if content differs. Current issues of importance to the engineering profession. Topics focus on advances in basic fire science, computerized fire modeling, safety systems, human behavior and fire, fire toxicity, risk analysis, performance based fire safety, fire reconstruction, arson and evidence, voluntary fire safety standards, codes, and relations with other disciplines including architecture and the built environment, loss prevention and fire insurance.

ENFP 210 Fire and Western Civilization (3) Fire and Western Civilization: Human interaction with fire as both destructive and productive force from ancient civilizations to the present. Fire in war, agriculture, religion, art, industry, philosophy, science, urban development, engineering, criminal law and modern environmental protection.

ENFP 251 Introduction to Fire Protection Engineering (3) The social, economic, environmental and legal dimensions of the fire protection engineering profession and its application to selected fire protection systems. Technological assessment of urban fire protection utilizing operations research and systems engineering procedures.

ENFP 255 Fire Alarm and Special Hazards Design (3) Formerly ENFP 315. Study of gaseous and particulate fire suppression systems. Examination and evaluation of code criteria, performance specifications and research. Application of fluid theory to the calculation procedures for gaseous partculate fire suppression systems. An integrated fire protection systems design project. Functional analysis and design of detection systems.


ENFP 310 Water Based Fire Protection Systems Design (3) Recommended: ENFP 300. Study of aqueous suppression system agents and their application to selected fire protection problems. Examination of specifications, code criteria, published standards and research utilized in the engineering design of aqueous agent suppression systems. Application of hydraulic theory to a range of design considerations. Problem calculation and design of fire protection systems and designed layouts.

ENFP 312 Heat and Mass Transfer (3) Prerequisites: ENCH 300, ENME 320 or ENME 232) and (ENFP 300, ENCE 330 or ENME 331). Fundamentals of heat and mass transfer. Conduction, convection, radiation modes of heat transfer. Diffusion concepts and evaporation phenomena. Problem solving techniques.

ENFP 320 Fire Assessment Methods and Laboratory (4) Three hours of lecture and one hour of laboratory per week. For ENFP majors only. Experimental evaluation of ignition, flame spread, rate of heat release and smoke production of furnishings and interior finish materials.

ENFP 350 Professional Development Seminar (1) One hour of lecture per week. Discussion of fire protection issues. Prerequisite: permission of department. Senior standing. Not open to students who have completed ENFP 450. Credit will be given for both ENFP 350 and ENFP 450. Formerly ENFP 450. An integrative, upper level professional development seminar covering topics such as engineering ethics, safety and sustainability, intellectual property, career selection and various contemporary issues in fire protection engineering; and related fields of engineering.


ENFP 411 Fire Risk Assessment (3) Prerequisites: ENFP 251; and ENFP 255. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy, and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

ENFP 415 Fire Dynamics (3) Prerequisites: ENFP 300 or ENCE 330 or ENME 342; and ENME 320 or ENCH 300; and ENFP 251. Case study of fire behavior. Prerequisites: ENFP majors only. Introduction to current fire modeling techniques for building fire safety assessment. Application of various computer-based fire models to representative problems.

ENFP 429 Independent Studies (1-3) Prerequisite: permission of department. For ENFP majors only. Repeatable to 6 credits if content differs. For students who have definite plans for individual study of advanced topics. Prerequisite: senior standing. For ENFP majors only. Introduction to current fire modeling techniques for building fire safety assessment. Application of various computer-based fire models to representative problems.

ENFL 205 Introduction to Literature by Women (3) Literature (3) A study of women in literature. A broad survey of women's role, their writings and the role their writing has played in the culture, society and politics of their time. The course will begin with prehistoric times and progress to contemporary times. The course will pay special attention to women's writing in the English-speaking world. Prerequisite: permission of instructor. Open to students who have completed ENFP 450. Credit will be granted for only one of the following: ENFL 250 or WMST 255. Images of women in literature and about women.

ENFL 206 Introduction to Folklore (3) Surveys a wide range of folkloric genres, history and theory of folklore.

ENFL 212 Hebrew Bible: Narrative (3) Also offered as ENFL 212. Open to students who have completed HEBR 222. Credit will be granted for only one of the following: ENFL 212 or WMST 256. Formerly HEBR 223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.
ENGL 263 The Hebrew Bible: Poetry and Rhetoric (3) Also offered as JWST 263. Open to students who have completed HEBR 224. Credit will be granted for only one of the following: ENGL 263 or JWST 263. Formerly HEBR 224. Readings and discussions of metaphors and devices from the Hebrew Bible. Analysis of devices and their rhetorical effect. Comparison of biblical poetry with other poetry of the ancient near East. In English; no knowledge of Hebrew required.

ENGL 265 Introduction to Lesbian, Gay, and Bisexual Literature (3) A clears ENGL 202. Open to students who have completed HEBR 224. Credit will be granted for only one of the following: ENGL 265 or JWST 265. Formerly HEBR 224. Readings and discussions of selected works from the Hebrew Bible. Analysis of devices and their rhetorical effect. Comparison of biblical poetry with other poetry of the ancient near East. In English; no knowledge of Hebrew required.

ENGL 277 Mythologies: An Introduction (3) Introduction to the myths of Europe, Asia, Oceania, the Middle East, Africa and North and South America.

ENGL 278 Special Topics in Literature (3) Repeatable to 9 credits if content differs.

ENGL 278C Love, Adventure and Identity in Early English Literature (3)

ENGL 278F The Blues Tradition: African-American Folk and Popular Song (3)

ENGL 278S The American Short Story in its World Context (3)

ENGL 280 Introduction to the English Language (3) Familiarizes students with the basic principles of phonetics and phonology. An introduction to the study of phonetics and phonology for English. Topics covered include: sounds and their production; the nature of the human voice; the structure of speech sounds; the relationship between sound and meaning; and the use of language in different contexts.

ENGL 281 Standard English Grammar, Usage, and Diction (3) The basic structure of written English, including parts of speech, sentence patterns, standard punctuation, dictation, and usage.

ENGL 282 Introduction to Rhetorical Theory (3) Basic elements of rhetorical theory. Classical and contemporary perspectives on the nature, functions, and scope of rhetoric. Topics for analysis include nonfiction prose, novels, short fiction, philosophical treatises, autobiographies, diaries, and speeches.

ENGL 291 Intermediate Writing (3) Writing essays, the revision process, and editing techniques.

ENGL 294 Introduction to Creative Writing (3) Writing of fiction and poetry, with special attention to elements of style and craft. Selected readings, frequent writing exercises, workshop format.

ENGL 296 Beginning Fiction Workshop (3) Writing of fiction, with special attention to elements of style and craft. Selected readings, frequent writing exercises, workshop format.

ENGL 297 Beginning Poetry Workshop (3) Writing of poetry, with special attention to elements of style and craft. Selected readings, frequent writing exercises, workshop format.

ENGL 301 Critical Methods in the Study of Literature (3) For English and English education majors. An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature.

ENGL 302 Medieval Literature in Translation (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. A historical survey of medieval literature. Sources and traditions of medieval literature are studied, including authors such as Beowulf, Grettis Saga, and The Volsunga Saga. The course also explores the influence of medieval literature on later works of literature in English.

ENGL 304 The Major Works of Shakespeare (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Open to students who have completed ENGL 303 and ENGL 404. Representative early, middle, and later works, including comedies, tragedies, histories, and romances. Historical and cultural contexts.

ENGL 305 Shakespeare and His Contemporaries: An Introduction (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Readings in Shakespeare and contemporaries such as Marlowe, Dekker, Middleton, Jonson, Webster, Chapman, Marston, and the biblical and Jacobean theatrical and social contexts.

ENGL 306 African, Indian and Caribbean Writers (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Works read in Middle and Northern Africa, the Indian subcontinent, and the Caribbean. Focus on the development of the African, Indian, and Caribbean literary traditions, including the influence of colonialism and the struggle for independence.

ENGL 307 Medieval Myth and Modern Narrative (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Open to students who have completed ENGL 361. Formerly ENGL 361. Literary patterns that continue from medieval to modern are explored, including links between Medieval and Modern literature such as "The Princess Bride," "Beowulf," "The Morte D'Arthur," "The Volsunga Saga," and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings."
ENGL 407 Non-dramatic Literature of the Sixteenth Century (3) Prerequisite: two English courses in literature or permission of department. Poetry and prose genres—utopia, epic, narrative, lyrical, sonnet, construction, epistle, sermon, apologia—in context. Typical topics: Art of poetry, humanism in the sixteenth century. Writers such as More, Wyatt, Surrey, Sidney, and Spenser.

ENGL 408 Literature by Women Before 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 6 credits if content differs. Offered as WMST 408. Credit will be granted for only one of the following: ENGL 408 or WMST 408. Selected writings by women in the medieval and early modern era.

ENGL 410 Edmund Spenser (3) Prerequisite: two English courses in literature or permission of department. Selected works of Edmund Spenser in their literary, social, and historical contexts. Special attention to The Faerie Queene; also sonnets and lyric poetry. Other works may include Samson Agonistes and shorter poems.

ENGL 412 Literature of the Seventeenth Century, 1660-1660 (3) Prerequisite: two English courses in literature or permission of department. Works from early Stuart through Interregnum period. Major literary genres in historical contexts. Writers such as Donne, Jonson, Wotton, Bacon, Browne, and Marvel.

ENGL 414 Milton (3) Prerequisite: two English courses in literature or permission of department. Poetry and major prose in their social, political, and literary-historical contexts. Special attention to Paradise Lost. Other works may include Samson Agonistes and shorter poems.

ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3) Prerequisite: two English courses in literature or permission of department. British poetry, drama, fiction, and non-fiction written from Charles I to Queen Anne. Increasing literary and public and greater involvement by women in literary production. Authors include Milton, Dryden, Congreve, and Behn.

ENGL 416 Literature of the Eighteenth Century, 1700-1750 (3) Prerequisite: two English courses in literature or permission of department. British literary traditions, including the poetry of Pope, the prose of Swift, the correspondence of Montagu, the drama of Gay, and early novels of Defoe, Richardson, and Fielding.

ENGL 417 Literature of the Eighteenth Century, 1750-1800 (3) Prerequisite: two English courses in literature or permission of department. British poetry, drama, fiction, and non-fiction, emphasizing innovative forms and attitudes in genres such as the gothic novel and political writings, as well as more traditional works. Authors include Johnson, Burke, Sterne, Burke, and Fielding.

ENGL 418 Major British Writers before 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 419 Major British Writers after 1800 (3) Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 420 English Romantic Literature (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. British poetry, drama, fiction, and criticism c.1790 to c.1830, a period of dramatic social change and revolution in literature, philosophy, the arts, industry, and politics. Authors include Austen, Wordsworth, Cole ridge, Keats, Byron, Percy, and Mary Shelley.

ENGL 422 English Victorian Literature (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. A survey of English literature of the Victorian period. Includes American authors, Tennyson, Dickens, George Eliot, Carlyle, Ruskin, Newman, Wilde.

ENGL 425 Modern British Literature (3) Prerequisite: two English courses in literature or permission of department. Major Modernist writers in English prose and poetry since the nineteen-thirties. Also offered as WMST 425. Credit will be granted for only one of the following: ENGL 425 or WMST 425. An in-depth study of literary and critical theory.

ENGL 447 Satire (3) Prerequisite: two English courses in literature or permission of department. A study of the comic tradition from the Restoration of Charles II to 1700. Attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as the comic form in prose and poetry.

ENGL 462 Folksong and Ballad (3) Prerequisite: two English courses in literature or permission of department. Selected writings by women on theater of the twentieth century. Authors such as Austen, Bronte, Dickens, George Eliot, Trollope.

ENGL 464 African-American Folklore (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. The origins and development of African American folklore and its influence in African American oral and literary traditions. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austin, Bronte, Dickens, George Eliot, Trollope.

ENGL 466 Folk Narrative (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. A study of the comic tradition from the Restoration of Charles II to 1700. Attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as the comic form in prose and poetry.

ENGL 467 American Folklore (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. A survey of American folklore and its influence in American oral and literary traditions. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austin, Bronte, Dickens, George Eliot, Trollope.

ENGL 468 American-French Folklore (3) Prerequisite: two lower level English courses, at least one in literature; or permission of department. A study of the comic tradition from the Restoration of Charles II to 1700. Attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as the comic form in prose and poetry.

ENGL 470 American Literature, Beginning to 1810, the Colonial Period (3) Prerequisite: two English courses in literature or permission of department. The Enlightenment, early Romanticism. Writers such as Bradstreet, Franklin, Brown.
ENGL 467 The Computer and the Text: Hypermedia as Critical Expression

ENGL 468 American Film Directors (3-9) Prerequisite: one college-level film course. Repeatable to 9 credits if content differs. A study of two or more American filmmakers in an analytical cultural context.

ENGL 469 Honors Seminar: Alternative Traditions (4-5) Prerequisite: permission of Director of English Honors. Repeatable to 9 credits if content differs. Year-long seminar focusing on a selected literary, cultural, or social topic that features texts and/or critical perspectives outside the traditional canon.

ENGL 470 African-American Literature: The Beginning to 1910 (3) Prerequisite: two English courses in literature or permission of department. Beginnings of African-American literature including origins of literary expression in folk tales, songs, and spirituals; slave narratives; pamphlets, essays and oratory; and the emergence of poetry and fiction. Emphasis is on interaction between literary forms and the salient political issues of the day.

ENGL 471 African-American Literature: 1910-1945 (3) Prerequisite: two English courses in literature or permission of department. Development of African-American writing including debates over the definition of unique African-American aesthetics, with emphasis on conditions surrounding the production of African-American literatures.

ENGL 472 African-American Literature: 1945 to Present (3) Prerequisite: two English courses in literature or permission of department. Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.

ENGL 476 Modern Fantasy and Science Fiction (3) Prerequisite: two English courses in literature or permission of department. Major works of fantasy and science fiction since the mid-eighteenth century, emphasizing their continuity and their relationship to philosophy, critical speculation, scientific discovery, literary history and cultural change.

ENGL 477 Studies in Mythmaking (3) Prerequisite: two literature courses. Major themes, figures, and configurations of northern European mythology, examining the value of the mythic mode of thought in a scientific era.

ENGL 478 Selected Topics in English and American Literature before 1800 (1.3) Prerequisite: two English courses in literature or permission of department. Repeatable if content differs.

ENGL 479 Selected Topics in English and American Literature after 1800 (1.3) Prerequisite: English courses in literature or permission of department. Repeatable if content differs.

ENGL 482 History of the English Language (3) Prerequisite: ENGL 482. Junior standing. Historical development of English from Old English to Modern English. Includes such topics as phonetic, lexical, grammatical, and syntactical developments.

ENGL 484 Advanced English Grammar (3) Credit will be granted for only one of the following: ENGL 484 or LING 402. Advanced study of grammatical description.

ENGL 486 Introduction to Old English (3) Prerequisite: two English courses in literature or permission of department. Grammar, syntax, and phonology of Old English. Works read in the original language. Poetry may include "Battle of Maldon," "Dream of the Rood," "Wanderer," "Seafarer," "riddles; prose of Bede, Wulfstan, Aelfric, and other writers of Anglo-Saxon period in England.

ENGL 487 Foundations of Rhetoric (3) Credit will be granted for only one of the following: ENGL 487 or SPCH 401. Principles of argument, types of evidence, methods of persuasion, power, organization, and logical analysis.

ENGL 488 Topics in Advanced Writing (3) Repeatable to 9 credits if content differs. Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.

ENGL 489 Special Topics in English Language (3) Repeatable to 9 credits if content differs. Encompasses a wide range of topics in the study of language, such as linguistics, history of rhetoric, and composition studies.

ENGL 493 Advanced Expository Writing (3) Prerequisite: satisfactory completion of professional writing requirement. Writing processes and documents most necessary for professional writers.

ENGL 494 Editing and Document Design (3) Prerequisite: ENGL 391. ENGL 393 or equivalent. Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and writing and editing accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.

ENGL 495 Independent Study in Honors (1.3) Prerequisites: candidacy for honors in English and ENGL 370 and ENGL 373. For ENGL majors only. Completion and presentation of the senior honors project.

ENGL 498 Advanced Fiction Workshop (3) Prerequisite: ENGL 396 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL 496. Practice in the craft of writing fiction, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, voices, and forms. Selected readings, frequent writing exercises, workshop format.

ENGL 499 Advanced Poetry Workshop (3) Prerequisite: ENGL 397 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL 497. Practice in the craft of writing poetry, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, forms, and literary conventions. Selected readings, frequent writing exercises, workshop format.

ENMA 1 — Engineering, Materials

ENMA 181 Introduction to Materials (1) Seminar introducing materials science and engineering (MSE) to freshmen and transfer students. Class activities and guest lectures cover the role of MSE in engineering and career opportunities for MSE majors.

ENMA 300 Materials Science and Engineering (3) Prerequisite: ENES 230. Credit will be granted for only one of the following: ENMA 301 or ENME 301. Basic principles, nature and properties of engineering materials. Processes and methods to manufacture and usefully apply engineering materials. Fabrication techniques for metals, polymers, and refractories.

ENMA 301 Materials Engineering Laboratory I (2) Two hours of laboratory per week. Pre- or corequisite: ENMA 300. Credit will be granted for only one of the following: ENMA 301 or ENME 301. Fabrication techniques for metals, polymers, and refractories.

ENMA 310 Materials Engineering Laboratory I: Structural Characterization (3) One hour of lecture and six hours of laboratory per week. Prerequisite: ENES 230. Corequisite: ENMA 460. Junior standing. Characterization of the structure of materials including both single crystal and polycrystalline materials. Laboratories will include x-ray and electron diffraction and microscopy.

ENMA 311 Materials Engineering Laboratory II: Electromagnetic Properties (3) One hour of lecture and six hours of laboratory per week. Prerequisites: ENMA 310 and ENMA 460. Junior standing. Characterization of the electromagnetic properties of materials. Laboratories will include measurements of electrical and transport properties, index of refraction, and magnetic properties.

ENMA 362 Mechanical Properties (3) Prerequisite: ENES 230. Corequisite: ENMA 311. Credit will be granted for only one of the following: ENMA 312 or ENME 312. Mechanical testing of materials, including static tests, fatigue, fracture, and fatigue.


ENMA 420 Intermediate Ceramics (3) Prerequisites: ENES 230, ENMA 470, and ENMA 471 or permission of department. To introduce basic concepts such as crystal chemistry, defect chemistry and phase transformations which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 460 Physics of Solid Materials (3) Prerequisites: MATH 241 and PHYS 263. Junior standing. Basic introduction to basic ideal and real materials' behavior including mechanical, electrical, thermal, magnetic and optical properties of materials. Importance of microstructure in behavior. One application of each property will be discussed in detail.

ENMA 461 Thermodynamics of Materials (3) Prerequisite: ENES 230. Junior standing. Thermodynamic aspects of materials, basic concepts and applications in design and processing of materials and systems. Topics include: energy, entropy, adiabatic and isothermal processes, internal and free energy, heat capacity, phase equilibria and surfaces and interfaces.

ENMA 462 Deformation of Engineering Materials (3) Prerequisite: ENES 230 or permission of both department and instructor. Relationship of structure to the mechanical properties of materials. Classic deformations: macroscopic yield criteria, stress of state and ductility. Elements of distortion theory, work hardening, alloy strengthening, creep, and fracture in terms of distortion theory.


ENMA 464 Environmental Effects on Engineering Materials (3) Prerequisite: ENES 230 or permission of both department and instructor. Introduction to the interaction of environmental conditions with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion and electrochemical corrosion. Each topic is examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and fabrication criteria for selection of materials for use in radiation environments.

ENMA 470 Structure and Properties of Engineering Materials (3) A comprehensive survey of the atomic and electronic structure of solids with emphasis on the relationship of structure to the physical and mechanical properties.

ENMA 471 Kinetics, Diffusion and Phase Transformations (3) Prerequisite: ENMA 461. Junior standing. Analysis and evaluation of metals and/or ceramics problem and then design and evaluate a strategy to minimize or eliminate the problem; an understanding of the relationship between the structure of solids and their potential engineering applications.

ENMA 473 Processing of Engineering Materials (3) The effect of processing on the structure of engineering materials. Processing considered include refining, melting and solidification, purification by zone refining, vapor phase processing, mechanical working and heat treatments.

ENMA 481 Introduction to Electronic and Optical Materials (3) Prerequisite: ENES 230 or equivalent. Electronic, optical and magnetic properties of materials. Emphasis on materials for advanced optoelectronic and magnetic devices and the relationship between properties and the processing/fabrication conditions.

ENMA 489 Selected Topics in Engineering Materials (3) Prerequisite: permission of department. Repeatable to 12 credits if content differs. To introduce basic concepts such as crystal chemistry, defect chemistry and phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 490 Materials Design (3) One hour of lecture and six hours of laboratory per week. Pre- or corequisite: ENES 230. Credit will be granted for only one of the following: ENMA 490 or ENME 490. Fabrication techniques for metals, polymers, and refractories.

ENME 496 Processing and Engineering of Polymers (3) Prerequisites: ENME 285. Processing and engineering techniques for the conversion of polymer materials into products are discussed. Processes considered include forming, bonding and modification operations. The effect of processing on the structure and properties of polymer materials is emphasized.

ENMA 499 Senior Laboratory Project (1-3) Senior standing. Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory report.

ENME — Engineering, Mechanical


ENME 232 Thermodynamics (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES 221. Develop the skills to generate readable, compact and verifiably correct MATLAB scripts and functions to obtain numerical solutions to engineering models and display the results with fully annotated graphics. Learn structured programming.

ENME 320 Thermodynamics (3) Prerequisites: MATH 141; and PHYS 263. Principles of heat engines, mass, momentum and energy conservation equations, heat exchangers, properties of matter. First and second laws of thermodynamics, cycles, reactions, and mixtures.

ENME 414 Computer Aided Design (3) Prerequisites: ENME 401, and MATH 241 or equivalent. Introduction to computer-aided design. Computer-aided design project.


ENME 467 Finite Element Analysis (3) Prerequisites: ENME 350 and MATH 240; and PHYS 263. Techniques of detecting and locating defects in engineering materials. Mathematical descriptions of system behavior and optimization. Optimal design of mechanical systems.

ENME 468 Special Problems (3) Prerequisites: permission of department. Repeatable to 6 credits with permission of advisor. Selected topics of current importance in mechanical engineering.

ENME 490 Mechanical Engineering Honors Seminar (1) Prerequisite: permission of the Honors Program. For ENME majors only. New trends and technologies in Mechanical Engineering.

ENNU — Engineering, Nuclear

ENNU 215 Introduction to Nuclear Technology (3) Prerequisites: MATH 141; and PHYS 161. Engineering problems of the nuclear energy complex, including basic theory, nuclear reactor design and isotopic and chemical separations.

ENNU 310 Environmental Aspects of Nuclear Engineering (3) Prerequisites: MATH 241 or MATH 246; and PHYS 263 or permission of both department and instructor. Evaluation of environmental and social aspects of nuclear reactors. Calculations of radioactive decay, activation, shielding, radiation monitoring. Biological effects of radiation, waste disposal. Safety experiments. Both a subcritical reactor, as related to environment safety and licensing regulations.


ENNU 398 Honors Research Project (1-3)

ENNU 430 Radiosotope Power Sources (3) Prerequisite: ENNU 215 or permission of both department and instructor. Principles and technology of radioisotope power sources. Design and use of nuclear batteries and small energy conversion devices.

ENNU 435 Activation Analysis (3) Prerequisite: ENNU 215 or permission of both department and instructor. Principles and techniques of activation analysis involving neutrons, photons, and charged particles. Emphasis placed upon application of this analytical technique to solving environmental and engineering problems.


ENNU 442 Nuclear Engineering Laboratory I (1) One hour of lecture and two hours of laboratory per week. Prerequisite: ENNU 441. Corequisite: ENNU 442. Principles of radiation detection, measurement and instruments of nuclear science and instrumentation. Design and use of nuclear batteries and small energy conversion devices.

ENNU 443 Nuclear Engineering Laboratory II (1) One hour of lecture and two hours of laboratory per week. Prerequisite: ENNU 441. Corequisite: ENNU 442. Principles of radiation detection, measurement and instruments of nuclear science and instrumentation. Design and use of nuclear batteries and small energy conversion devices.

ENNU 444 Nuclear Engineering Laboratory III (1) One hour of lecture and two hours of laboratory per week. Prerequisite: ENNU 441 and ENNU 442. Heat transfer, fluid flow, boiling experiments. Applications to reactor systems and components. Observation of thermohydraulic phenomena. Gamma shielding analysis.

ENNU 450 Nuclear Reactor Engineering I (3) Prerequisites: MATH 246; and PHYS 263; or permission of both department and instructor. Elementary nuclear physics, reactor theory, and reactor energy transfer. Steady-state and time-dependent neutron distributions in space and energy. Conduction and convective heat transfer in nuclear reactor systems.

ENNU 455 Nuclear Reactor Engineering II (3) Prerequisite: ENNU 450. General plant design considerations including radiation hazards and health physics, shielding design, nuclear power economics, radiation effects on reactor materials, and various types of nuclear reactor systems.

198 Approved Courses

FMT 498 Special Topics (1-3) Prerequisite: permission of department. May not be used to fulfill arts and humanities language requirement.

FOLA — Foreign Language

FOLA 108 Elementary Foreign Languages I (3) Repeatable if content differs. A continuation of FREN 108. The course is designed to bring students to a basic reading and translation competence of ordinary literary and scientific works. Prerequisite: any 200-level course in French above FREN 108. Not open to students with 2 or more years of high school French. Credit will be granted for only one of the following: FREN 108 or FREN 109.

FOLA 118 Intermediate Foreign Languages I (3) Prerequisite: FOLA 108 in the subject language or permission of department. Repeatable if content differs. The second semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, FOLA 118 and FOLA 119 in a single language.

FOLA 119 Intermediate Foreign Language II (3) Prerequisite: FOLA 118 in the subject language or permission of department. Repeatable if content differs. The third semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, FOLA 118 and FOLA 119 in a single language.

FOLA 128 Introductory Middle Eastern Languages I (3) Prerequisite: FOLA 119 in the subject language or permission of department. Repeatable to 9 credits if content differs. Developing intermediate language skills, in both grammar and vocabulary; enhancement of oral and written abilities.

FOLA 129 Introductory Middle Eastern Languages II (3) Prerequisite: FOLA 118 in the subject language or permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA 128. May not be used to satisfy arts and humanities language requirement.

FOLA 130 Directed Study of a Foreign Language I (3) Open only by permission of department to students of high motivation and proven oral and written language ability. Directed study of a modern foreign language with use of a self-instructional approach.

FOLA 135 Directed Study of a Foreign Language II (3) Prerequisite: FOLA 138 in the same language or permission of department. A continuation of FOLA 138.

FOLA 148 Directed Study of a Foreign Language IV (3) Prerequisite: FOLA 138 in the same language or permission of department. A continuation of FOLA 148.

FOLA 150 Directed Study of a Foreign Language (Intensive) I (6) Open only by permission of department to students of high motivation and proven oral and written language ability. Directed study of a modern foreign language with use of a self-instructional approach. Equivalent to FOLA 138 plus FOLA 139.

FOLA 159 Directed Study of a Foreign Language (Intensive) II (6) Prerequisite: FOLA 158 in the same language or permission of department. A continuation of FOLA 158. Equivalent to FOLA 148 plus FOLA 139.

FOLA 218 Intermediate Middle Eastern Languages I (3) Prerequisite: FOLA 129 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA 129. May not be used to satisfy arts and humanities language requirement.

FOLA 319 Advanced Middle Eastern Languages II (3) Prerequisite: FOLA 328 or permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA 328. May not be used to satisfy arts and humanities language requirement.

FOLA 389 Foreign Civilization (3) Repeatable to 6 credits if content differs. A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. All readings and instruction in English.

FOLA 408 Foreign Language I (3) Intensive study of a foreign language of a related topic, not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

FOLA 409 Foreign Language II I (3) Prerequisite: FOLA 408 in the same subject language or permission of department. May not be used to fulfill arts and humanities language requirement.

FOL 459 Foreign Literature in Translation (3) Repeatable to 6 credits if content differs. Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. All readings and instruction in English.

FREN — French

FREN 101 Elementary French I (4) Four classroom meetings per week. Not open to students with 2 or more years of high school level French or to native/fluently speaking French. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 102 Elementary French II (4) Four classroom meetings per week. Prerequisite: FREN 101 at UMCMP or permission of department. Not open to native/fluently speaking French. An introduction to intermediate language skills, in both grammar and vocabulary; enhancement of oral and written abilities.

FREN 103 Elementary French for Review (4) Four classroom meetings per week. Limited to students who have completed fewer than three years of high school French. Not open to students who have completed FREN 102 or to native/fluently speaking French. Credit will be granted for only one of the following: FREN 103 and FREN 104. Review of basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 121 Accelerated French I (3) Prerequisite: good background in French. Successful completion of level 4 in high school or equivalent at the university level; or linguistic competence acquired by residence abroad; or demonstration of equivalent proficiency. An intensive approach to developing language skills to enable the student to move more quickly to advanced courses. With FREN 122, may be used to satisfy language requirements.

FREN 200 French For Reading (3) Course not open to students in at least one of the two years of high school French. Two semesters of college French within the last five years, or to students for whom French is the native language. Intensive course devoted to helping students to a basic reading and translating competence of ordinary literary and scientific French, with the aid of a dictionary, in one semester. Study of essential grammar, but no spoken or written French involved. No prerequisites. May not be used to satisfy the language requirement of the College of Arts and Humanities.

FREN 202 Honors Intermediate French I (4) Four hours of lecture per week. Credit will be granted for only one of the following: FREN 202 or FREN 203. An intensive review of French literature and culture for students wishing an intensive, year-long experience. Credit will be granted for only one of the following: FREN 202 and FREN 203. Designed primarily for highly motivated students from other disciplines. Fulfills the Arts and Humanities language requirement.

FREN 203 Intermediate French I (4) Completion of the study of basic grammatical structures, with readings, conversation, and composition. Fulfills the Arts and Humanities language requirement.

FREN 204 Review Grammar and Composition (3) Prerequisite: FREN 203 or permission of department. Advanced vocabulary and construction of related drills.

FREN 211 Intermediate Conversation (3) Not open to native speakers. Prerequisite: FREN 203 or permission of department. Practice in spoken French with emphasis on contemporary French topics.

FREN 240 Masterworks of French Literature in Translation (3) Major works of French literature from pre-revolutionary France to the present. Emphasis on the individual in a social context. In English.

FREN 241 Women Writers of French Expression in Translation (3) Also offered as WMST 241. Credit will be granted for only one of the following: FREN 241 or WMST 241. Works and ideas of 20th-century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

FREN 242 Black Writers of French Expression in Translation (3) An analysis of the works and ideas of 20th-century black writers of French in Africa, the Caribbean and France. Taught in English.

FREN 300 Composition and Style (3) Prerequisite: FREN 204 or permission of department. Grammatical analysis, translation, free and guided composition.

FREN 302 Practicum in Translation I (3) Prerequisite: FREN 301 or permission of department. Problems and strategies of translation into both English and French. Journalism and literary styles.

FREN 303 Practicum in Translation II (3) Prerequisite: FREN 301 or permission of department. Problems and strategies of translation into both English and French. Commercial, political and diplomatic styles.

FREN 306 Commercial French I (3) Prerequisite: FREN 301 or permission of department. Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. In French.

FREN 311 French Conversation (3) Prerequisite: any 200-level course in French above FREN 102. Not open to native speakers. Development of aural comprehension and oral expression through use of radio and television broadcasts.

FREN 312 Introduction to French Culture: The French Press (3) Prerequisite: any 200-level course in French above FREN 203 or permission of department. Not open to native speakers. Analysis and discussion of articles from French and Francophone printed media, reflecting a variety of sources and styles.

FREN 351 From Romanticism to the Age of Modernism and Beyond (3) Prerequisite: FREN 204 or FREN 250 or permission of department. A survey of the chief authors and major movements of French literature from PreRomanticism to the present.

FREN 352 From the Age of Epic and Romance to the Enlightenment (3) Prerequisite: FREN 204 or FREN 250 or permission of department. A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.

FREN 370 Aspects of French Civilization (3) Credit may not be counted toward a French major. Political, social, intellectual, and literary forces shaped the modern Francophone world. Credit will be granted for only one of the following: FREN 370 or FREN 470. Intensive study of aspects of French civilization and culture for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

FREN 398 Practicum in Spoken French I (Prerequisite: FREN 312 or permission of department. Credit may not be counted toward a French major. Repeatable to 3 credits. Practice in French conversation at the advanced level.

FREN 399 Directed Study in French I (3) Prerequisite: permission of department. Repeatable to 3 credits. Intended for advanced undergraduates who wish to work on an individual basis with a professor of their choice. Not open to all students, but may not be counted toward French major. May be taken for one, two or three credits. This course is designed to help students with their oral and written language needs. Credit will be granted for only one of the following: FREN 399 and FREN 499.

FREN 400 Applied Linguistics (3) The nature of applied linguistics and its contribution to the effective teaching of foreign languages. Comparative study of English and French, with emphasis upon points of contrast. Analysis, evaluation and construction of related drills.

FREN 401 Writing with Style (3) Prerequisite: FREN 301 or permission of department. Advanced composition and stylistic analysis.

FREN 404 Issues in the French-Speaking World Today (3) Prerequisite: FREN 311 or FREN 312 or permission of department. A sociocultural and historical approach to relevant issues affecting contemporary French civilization. Press articles and television programs will be the basis for classroom cultural analysis and oral communication.

FREN 405 Explication De Texte (3) In-depth analysis of short literary works, or of excerpts selected for their historical, cultural, thematic or stylistic interest.

FREN 406 Commercial French II (3) Prerequisite: FREN 306 or permission of department. Advanced study of commercial French language—terminology and style—leading to preparation for the Paris Chamber of Commerce Examination.

FREN 419 Studies in Medieval French Literature (3) Repeatable to 6 credits if content differs. Selected topics in medieval French literature.

FREN 429 Studies in French Literature of the Renaissance (3) Repeatable to 6 credits if content differs. Selected topics in French literature of the Renaissance.

FREN 439 Studies in 17th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in seventeenth-century French literature.

FREN 449 Studies in 18th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in eighteenth-century French literature.

FREN 459 Studies in 19th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in nineteenth-century French literature.

FREN 469 Studies in 20th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in twentieth-century French literature.

FREN 471 The Construction of French Identity I: From the Origins to the (3) Age of Versailles French life, customs, culture, traditions (800-1750).

FREN 472 The Construction of French Identity II: From the Revolution to the Early Twentieth Century (3) Early Twentieth Century French life, customs, culture, traditions (1750 to the early twentieth century).

FREN 473 The Construction of French Identity III: Cross-Cultural Approaches (3) to the Study of Contemporary French Society. An exploration of modern and traditional, mythological, and ideological modern France, from the Third Republic to the present, through historical and cross-cultural approaches, with reference to the Francophone world.


FREN 478 Themes and Movements of French Literature in Translation (3) Studies of thematic problems of literary or historical movements in French literature. Topic to be determined each semester. Taught in English.

FREN 479 Masterworks of French Literature in Translation (3) Treats the works of one or more major French writers. Topic to be determined each semester. Taught in English.


FREN 481 Femmes Fatales and the Repatriation of Violence in Literature, (3) Opera and Film (in English) The problem of violence in art with respect to women and marginal populations. Taught in English.

FREN 482 Gender and Ethnicity in Modern French Literature (3) Literature by women writers of France and other French speaking areas with a focus on the relationship between gender, ethnicity, and writing. Taught in English.

FREN 483 1 and They: Conflict Between Individual and Society in French (3) Literature The alienation of the individual in conflict with society reflected in French works from the absolutist society of the 17th century to the disintegration of societal norms today. Taught in French.


FREN 485 Ideologies and Relations between the Sexes in French Literature (3) (in Translation) The evolution of sexual roles in the Western world as reflected in masterworks of French literature from the 12th to the 20th centuries. Taught in English.

FREN 489 Pro-Seminar in Themes or Movements of French Literature (3) Repeatable to 6 credits if content differs.

FREN 499 Special Topics in French Studies (3) Repeatable to 6 credits if content differs. An aspect of French studies, the specific topic to be announced each time the course is offered.

GEMS — Gemstone

GEMS 101 Technological Innovation: An Historical Perspective (3) Two hours of lecture, one hour of labatory, and one hour of discussion/recitation per week. For Gemstone participants only. Recommended: ENES 100G. First in a three-course sequence on the implications of technology that forms part of the Gemstone program. Compares how technological disciplines to demonstrate: 1) how the discipline of history defines and analyzes problems; (2) how technical concepts emerge from historical experience; and 2) how the application of these concepts has been shaped by social and cultural issues. Students will define and address modern technological problems.

GEMS 102 Research Topic Exploration (1) For Gemstone participants only. Under the guidance of faculty and other visiting speakers, students will develop research topics that they will pursue for the remainder of their participation in the Gemstone program, and they will also form into interdisciplinary teams.

GEMS 103 Social Perspectives on Technological Innovations (3) Two hours of lecture and one hour of discussion/recitation per week. Recommended: Must be admitted into the Gemstone Program. This course focuses on bridging the gap between disciplines illustrating the connection between technology and society. The three areas of focus include the historical emergence and significance of various technologies; how various technologies interact, influence and are influenced by various aspects of contemporary society, and address the relationship between technological innovation and commercial enterprises.

GEMS 201 Technological Innovation: A Sociological Perspective (3) For Gemstone participants only. Recommended: GEMS 101. The impact of technology broadly conceived to include the knowledge system on 1) the organization of work in a comparative perspective; 2) on the nature of innovation in products; 3) on the nature of competition and its feedback on the organization and the larger society; and 4) various adaptive strategies that firms and governments can use to handle the turbulence of technological waves. Emphasis on the new technologies, including flexible manufacturing, of the last ten years.

GEMS 202 Team Dynamics and Research Methodology (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: Students must be admitted into the Gemstone Program. Sophomore standing. This course utilizes theories and research in Organizational Psychology that explores the antecedents and consequences of personal behavior in a team setting. The “antecedents” are the individual, group, and organizational characteristics that influence team behavior. The “consequences” are the intended and unintended effects of a research team’s adoption and implementation of certain behaviors on individual and team performance. The tools include self-knowledge; meeting management; conducting collaborative research; organizational leadership; organizational culture; organizational change; and the implementation of innovative work procedures.

GEMS 208 Special Topics in Leadership and Team Development (3-3) Principles, methods and types of leadership and team development with an emphasis on group discussion and decision making. Reading, discussion and exploration of the basic team concept, communications for winning scenarios, goal setting, problem solving, conflict resolution and research methods.

GEMS 296 Team Project Seminar I (2) Prerequisite: GEMS 102. For Gemstone participants only. Students will develop and use teamwork skills and carry out interdisciplinary research under the general guidance of a faculty mentor. The student subgroup will investigate broad interdisciplinary challenges of societal, environmental, business or policy significance that have a significant technological component in the potential solution.

GEMS 297 Team Project Seminar II (2) Prerequisite: GEMS 296. For Gemstone participants only. Students will continue to develop and use teamwork skills and carry out interdisciplinary research under the general guidance of a faculty mentor. The student subgroup will investigate broad interdisciplinary challenges of societal, environmental, business, or policy significance that have a significant technological component in the potential solution.

GEMS 497 Team Thesis Defense (1) Prerequisite: GEMS 496. For Gemstone participants only. Students will use teamwork skills to complete the team research project and thesis. The thesis will formally present the thesis to experts in the area of interest.

GEOG — Geography

GEOG 100 Introduction to Geography (3) An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

GEOG 110 The World Today: A Regional Geography (3) An examination of the functioning world today and the regions and major countries that are part of the whole. Organized around these regions, this course is conceived to include the knowledge system on the new technologies, including flexible manufacturing, of the last ten years.

GEOG 123 Causes and Implications of Global Change (3) Also offered as GEOG 123, METO 123, and PIBIO 123. Credit will be granted for only one of the following: GEOG 123, GEOG 123, METO 123, or PIBIO 123. A unique emphasis in integrating physical, chemical, geographical, and biological sciences with geographical, economic, sociological, and political knowledge toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what we have in common and that we have in terms of providing understanding of the world and its regions for the general education student.

GEOG 130 Nations in Conflict: A Spatial View (3) The geographic characteristics of conflict areas around the world. Issues common to international disputes such as: uneven access to resources, population pressures, religious differences and boundary disputes.

GEOG 123 Causes and Implications of Global Change (3) Also offered as GEOG 123, METO 123, and PIBIO 123. Credit will be granted for only one of the following: GEOG 123, GEOG 123, METO 123, or PIBIO 123. A unique emphasis in integrating physical, chemical, geographical, and biological sciences with geographical, economic, sociological, and political knowledge toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what we have in terms of providing understanding of the world and its regions for the general education student.

GEOG 140 Coastal Environments (3) Introduction to coastal environments, with emphasis on U.S. East Coast. Physical and ecological systems, beach processes, waves, currents, human impacts on coastal zone management and engineering. Case studies of coastal areas, including Ocean City, Maryland.

GEOG 150 World Cities (3) An introduction to the geographic characteristics of cities, their roles and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

GEOG 190 Coastal Environments (3) Introduction to coastal environments, with emphasis on U.S. East Coast. Physical and ecological systems, beach processes, waves, currents, human impacts on coastal zone management and engineering. Case studies of coastal areas, including Ocean City, Maryland.

GEOG 150 World Cities (3) An introduction to the geographic characteristics of cities, their roles and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

GEOG 170 Maps and Map Use (3) The use and interpretation of maps encountered in both “everyday” reading and in scientific literature. Development of skills in map reading, environmental analysis, interpretation and orienteering.

GEOG 171 Maps and Map Use Laboratory (1) Two hours of laboratory per week. Pre- or corequisites: GEOG 170. A laboratory course to accompany GEOG 170. Experience with maps in research; map reading; interpretation of topographic and other maps; measurement of angles, directions, distance, area; topographic maps; map interpretation; symbolism; statistical mapping; spatial arrangement; and remote sensing.

Approved Courses 199
GEOG 201 Geography of Environmental Systems (3) A systematic study of the principles and methods of the interaction between climatology, hydrology, and geomorphology.

GEOG 202 The World in Cultural Perspective (3) The imprint of cultural traits, such as religion, language, and livelihood systems, on the development of the landscape. The transformation of the earth's surface as a result of cultural diversity, settlement patterns, political organization, cultural evolution, and population growth.

GEOG 203 Economic Geography (3) The spatial characteristics of world economic activities. Population patterns, technology and economic development; principles of spatial interactions in trade; transportation networks; the city as an employment center.

GEOG 211 Geography of Environmental Systems Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: GEOG 201 or GEOG 100 or GEOG 120. A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance using basic instrumental; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.

GEOG 212 The World in Cultural Perspective Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: GEOG 202. For GEOG majors only. Introduction to the basic methods and techniques employed in human geography.

GEOG 305 Quantitative Methods in Geography (3) A practical study of how to use data sources and methods for organizing data. Emphasis on quantitative descriptive statistics, data collection, sampling and questionnaire design, field techniques, map use, computer use and data presentation.

GEOG 310 Research and Writing in Geography (3) Prerequisite: GEOG 305. Development of research methods in geography including the formulation of problem, the establishment of hypotheses, development of structures for presentation. Maps, quantitative and field methods are used to analyze data.

GEOG 323 Latin America (3) A study of the physical, cultural, and social and political patterns of the continent's major countries as functioning geographic systems with important historical, social, economic, political and cultural geography of the countries of the Iberian peninsula and Latin America in the past with concentration on specific time periods of special significance, including the Spanish and Portuguese conquests, the colonial period, and thedevelopment of nations that emerged in the 19th century. Emphasis on areal variations, and changes in the political, economic, and social geography of Latin America.

GEOG 325 Russia and the Commonwealth States (3) The political, economic, and social history of the countries of the former Soviet Union and its successor states. The transformation of the Russian Empire to the present. The internal structure of contemporary Russia and the Commonwealth States.

GEOG 331 Southeast Asia (3) Spatial organization and development in and among Malaysia, Singapore, Indonesia, the Philippines, Thailand, Vietnam, Laos, Kampuchea and adjacent areas. Location, functional significance of the natural environment, historical and cross-cultural processes, economic and modernization trends, social conflicts and future development prospects.


GEOG 345 Climatology (3) The geographic aspects of climate and weather. Principles of budgetary, steady-state and non-steady-state climatology, and climatic variations at both macro and microscales.

GEOG 347 Introduction to Biogeography (3) Prerequisite: GEOG 211. The principles of biogeography; evolution of biomes; biogeographic relationships of living organisms from local to global scales, aspects of ecophysiology, population and community ecology and evolutionary biology. Spatial processes in the biosphere will be covered.

GEOG 350 The American City: Past and Present (3) Development of the American city from the early 19th century to the present. The internal structure of contemporary metropolitan areas; economic, social, and political elements.

GEOG 360 Cultural Geography (3) Prerequisite: GEOG 201 or GEOG 202 or ANTH 101 or ANTH 102. Junior standing. Credit will be granted for only one of the following: GEOG 360 or GEOG 420. Formerly GEOG 420. Impact of human cultures on the environment and their spatial variation. Attention to the role of regions in human geography.

GEOG 361 Introduction to Human Dimensions of Global Change (3) Prerequisites: GEOG 201 or GEOG 202 or ANTH 220/101 or ANTH 220/102 or permission of department. Introduction to global-scale interrelationships between human beings and the environment. The development of global issues including trade, energy, technology, population, and policy.

GEOG 362 Cultural Geography (3) Prerequisites: GEOG 201 or GEOG 202 or ANTH 220/101 or ANTH 220/102 or permission of department. Not open to students who have completed GEOG 360. Credit will be granted for only one of the following: GEOG 360 or GEOG 362. Formerly GEOG 360. Impact of humans through ideas and technology on the evolution of geographic landscapes. Major themes in the relationships between cultures and environments.

GEOG 371 Computer Cartography (3) Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: GEOG 371 or GEOG 370. Formerly GEOG 371. The use of earth-radiant energy for mapping and analysis. Geographical factors in the transmission and transformation of electromagnetic radiation, and applications in remote sensing.

GEOG 372 Remote Sensing (3) Principles of remote sensing in relation to photogrammetry, thermal infrared and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

GEOG 373 Geographic Information Systems (3) Two hours of lecture and two hours of laboratory per week. Characteristics and organization of geographic data; creation and use of digital geographic databases; data models for thematic mapping and map analysis; use of geographic information system in society, government, and business. Practical training with use of advanced software and geographic databases.

GEOG 380 Local Field Course (3) Training in geodetic field methods and techniques. Field observation of land use in selected rural and urban areas in Maryland and adjacent areas.

GEOG 384 Internship in Geography (3) Prerequisite: permission of department. Credit will be granted for only one of the following: GEOG 440 or GEOG 441. Formerly GEOG 441. A quantitative investigation of the fundamental geomorphic processes shaping modern landscapes, with emphasis on coastal, fluvial or glacial processes. Discussion of historical perspective. Basic population-environmental relationships; carrying capacity, density, relationships to national development.

GEOG 385 Internship Research Paper (3) Prerequisite: GEOG 305 and GEOG 310 and permission of department. Corequisite: GEOG 385. Supervised field training to provide career experience. Introduction to professional level activities, including participation in a research project, fieldwork, and preparation of a research paper under the supervision of a faculty advisor. Credit will be granted for only one of the following: GEOG 385 or GEOG 386.

GEOG 386 Honors Research (3) Prerequisite: permission of department. Senior standing. For GEOG majors only. Formerly GEOG 387. First course in the departmental honors sequence. Students will develop a research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

GEOG 389 Honors Thesis (3) Senior standing. For GEOG majors only. Formerly GEOG 399. Second course in the departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.
Approved Courses 201

GEOG 448 Field and Laboratory Techniques in Environmental Science (3) Prerequisite: GEOG 123, 201 or GEOG 480. Formerly ENCE 105 or ENCE 221 or permission of department. Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contracts are developed with instructor.

GEOG 450 The Contemporary City (3) The contemporary urban system: towns, cities and metropolitan areas and their role as concentrators of physical, economic and political activity. Population and land-use: residential, employment, commercial activity, manufacturing, and transportation. Explanatory and descriptive models. International comparisons.

GEOG 454 Washington, D.C.: Past and Present (3) Development of the Washington, D.C. area from its origin as the Federal Capital to its role as a major metropolitan area. The geographic setting, the L'Enfant Plan and its modification, the federal government role, the political and commercial structure. The growth of Washington's suburbs.

GEOG 456 The Social Geography of Metropolitan Areas in Global Perspective (3) Prerequisite: permission of department. A socio-spatial approach to human interaction within the urban environment: ways people perceive, define, behave in, and structure world cities and metropolitan areas. Cultural and social differences define spatial patterns of social activities which further define distinctions in distribution and interaction of people and their social institutions.

GEOG 457 Historical Geography of North American Cities (3) The urbanization of the United States and Canada prior to 1920. The physical and spatial configuration of each city and the spatial distribution of activities within cities. The process of industrialization and the concurrent structuring of residential patterns among ethnic groups.

GEOG 462 Water Resources Policy and Planning (3) Conceptual and methodological tools for assessing water resources for effective management with an emphasis on Federal water policy and state level water policy. Examination of water resource planning models, focusing on demand projections, prediction of water supply and economic and environmental impact evaluation.

GEOG 463 Geographical Aspects of Pollution (3) Impact of human activities on the environmental and resulting pollution problems. Characteristics and spatial aspects of air, water, and land resource problems. Legal legislation and planning techniques to reduce pollution.

GEOG 467 Energy Resources and the Environment (3) Effects of energy resource utilization on the physical environment including land use, air and water quality, and solid waste generation. Recent laws and policies designed to reduce environmental impacts. Physical consequences of alternative energy technologies.

GEOG 470 Development of Cartographic Technology (3) Impacts of technological improvements in land surveying and mapping on cartographic development in both the natural sciences and in the formation, expansion and diffusion of geographic information. Study of cartographic imagery as a changing form of communication.

GEOG 471 Advanced Computer Cartography (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: GEOG 371. Credit will be granted for only one of the following: GEOG 471 or GEOG 481. Formerly GEOG 481. Advanced topics and skills of computer mapping using more sophisticated software package. Map projection evaluation and selection, coordinate system conversion, techniques of quantitative thematic mapping, map design and generalization, hypermedia and animated cartography. Emphasis on designing and making cartographically sound sophisticated thematic maps.

GEOG 472 Remote Sensing (3) Prerequisite: GEOG 372 or introductory remote sensing course in another department. Credit will be granted for only one of the following: GEOG 472 or GEOG 482. Formerly GEOG 480. Use of numerical, digital data and pictorial images from aircraft and space vehicles. Image display and enhancement. Applications in resources management and environmental studies.

GEOG 473 Geographic Information Systems and Spatial Analysis (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: GEOG 373. Credit will be granted for only one of the following: GEOG 473 or GEOG 482. Formerly GEOG 482. Analytical uses of geographic information systems: data models for building geographic data bases; types of geographic data and spatial problems; practical experience using advanced software for thematic domains such as terrain analysis, land suitability modeling, demographic analysis, and transportation studies.

GEOG 478 Problems in Cartography and Geographic Information Systems (3) Prerequisite: GEOG 371 or GEOG 373. Repeatable to 6 credits if content differs. Special topics in cartography and geographic information science
202 Approved Courses

GEOL 410 Industrial Rocks and Minerals (3) Prerequisite: GEOL 100/110 or GEOL 120/121. Mineralogy and petrology; treatment technology, production and deposit-evaluation of rocks and minerals used in the construction, ceramic, chemical and allied industries. Restricted to non-fuels, non-metallic, non- gem materials. Field trips to industrial locations are required.

GEOL 423 Optical Mineralogy (3) One lecture and four hours of laboratory per week. Prerequisite: GEOL 322. The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.

GEOL 436 Principles of Biogeochecmy (3) Three hours of lecture and two hours of laboratory per week. Prerequisites: CHEM 140 or CHEM 142, GEOL 100 or 103 or 110. An introduction to the basic principles of biogeochemistry including aspects of organic and inorganic geochemistry, biogeochemical cycles, the origin of life and paleoenvironmental evolution.

GEOL 437 Global Climate Change: Past and Present (3) Prerequisite: CHEM 103, Math 115, GEOL 100 or GEOL 120 or GEOL 103. The goal of the course is to highlight the fact that global climate change is part of the Earth's past as well as its present and future. Changes in climate that have occurred in the geologic past can be viewed as the Earth's natural climate variability. Changes that are different from those of the past could be linked with, historical and present anthropogenically-induced climate change. We will discuss the modern climate system, and the forcing climate change on various time scales, the geologic proxies of past climate change and what these proxies tell us. Finally, we will compare and contrast climate systems with what is understood (and not understood) about modern climate change.

GEOL 442 Introduction to Solid-Earth Geophysics (3) Prerequisites: GEOL 100 or GEOL 103 or GEOL 105 or GEOL 107. Formation and dynamics of the solid earth as revealed by seismology; magnetic and gravity field studies; and geothermal methods. Development of plate tectonic theory. Earthquake predictions; mantle thermal convection; plate tectonics and the Earth's core; space-related method for direct detection of plate motion (GPS, VLBI, and SLR).

GEOL 443 Petrology (4) Two lectures and one laboratory per week. Prerequisite: GEOL 322. Corequisite: GEOL 423. Study of igneous and metamorphic rocks: petrogenesis; distributions; and MATH 115, GEOL 100 or GEOL 120 or GEOL 103. An introduction to the basic principles of geochemistry including geothermometry, geobarometry, geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.

GEOL 446 Geophysics (3) Two lectures and one laboratory per week. Prerequisite: PHYS 142. An introduction to the basic theories and principles of geophysics stressing such important applications as the location of magnetism, gravity anomalies, crustal strain and earthquakes, and surveying.

GEOL 451 Groundwater Geology (3) Prerequisites: (CHEM 103 and MATH 140) and (GEOL 110 or GEOL 103 or GEOL 105 or GEOL 107). Corequisites: GEOL 342, Junior standing. An introduction to the hydrologic system parameters associated with the hydrologic cycle. Problems in the accumulation, distribution and movement of groundwater will be analyzed.

GEOL 452 Watershed and Wetland Hydrology (3) Prerequisites: CHEM 103 and (GEOL 110 or GEOL 103 or GEOL 105 or GEOL 107) and (GEOL 322 or GEOL 340 or GEOL 341 or GEOL 342). 56 semester hours, Junior standing. Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.

GEOL 453 Economic Geology (3) Two laboratories per week. Prerequisite: GEOL 103 or GEOL 110. An introduction to the economic geology of metallic ores, deposits stressing ore-forming processes, configuration of important ore bodies, and familiarization with characteristic ore mineral suites.

GEOL 456 Engineering Geology (3) Two lectures and one laboratory per week. Prerequisite: GEOL 341. A study of the geological problems associated with the location of tunnels, bridges, dams and nuclear reactors, slope control, and natural hazards.

GEOL 462 Geologic Remote Sensing (3) One lecture and two laboratories per week. Prerequisites: One of the following: GEOL 103, 100/110; GEOL 120/121; or GEOL 103. An introduction to geologic remote sensing including applications of aerial photography, satellite imagery, problems in geologic mapping, engineering geology, structural geology, and stratigraphy. Films, filters, and criteria used in selecting imagery are also discussed. Geologic problems include measurement of geologic parameters and compilation and transference of data to base maps.

GEOL 471 Geochronologic Geophysical Methods of Analysis (3) Prerequisite: GEOL 100 or GEOL 113. Principles and applications, major and trace elements, in geochronological analysis as applied to a variety of geologic problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microscope and electron microscopy.

GEOL 472 Tectonics (3) Prerequisite: GEOL 341. Selected tectonic elements of orogenic belts through out the world viewed in the framework of plate tectonics and sea floor spreading.

GEOL 489 Special Topics (3) Corequisites: GEOL 393. Junior standing. Field Geology, Geology Field Camp (6) Prerequisite: GEOL 390 or equivalent. Intensive field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrop, subsurface, and remotely sensed data. Special fees required.

GEOL 491 Environmental Geology Field Camp (3-6) Prerequisites: GEOL 341 and GEOL 342 and GEOL 451 or permission of department. Credit will be granted for only one of the following: GEOL 490 or GEOL 491. Intensive field course designed for students of environmental geology. Students will learn to make maps, to describe soil profiles and site characteristics, to monitor hydrologic and groundwater conditions, and to measure geologic structures and stratigraphic sections.

GEOL 499 Special Problems in Geology (1-3) Prerequisites: GEOL 102; and GEOL 110 or equivalent; and permission of department. Study of a special subject or technique selected after consultation with instructor. Intented to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.

GERM — German Studies

GERM 101 Elementary German I (4) One hour of laboratory and four hours of discussion/recitation per week. Formerly GERM 111. Introduction to basic structures and pronunciation by emphasis on the four skills: listening, speaking, reading and writing. Readings concern the current lifestyle and civilization of the Germanspeaking world.

GERM 102 Elementary German II (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM 101 or equivalent. Formerly GERM 112. A continuation of GERM 101. Topics will be based on vast range of material which will aid the student's development in his or her field of major interest.

GERM 103 Review of Elementary German I (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM 101 or equivalent. Formerly GERM 112. A continuation of GERM 101. Topics will be based on vast range of material which will aid the student's development in his or her field of major interest.

GERM 148 Germanic Languages - Elementary I (3) Repeatable to 6 credits if content differs. Basic instruction in a Germanic language other than German. May not be counted in the fulfillment of any major, minor, or specific literature requirement. Repeatable to 9 credits if content differs.

GERM 220 Viking Culture and Civilization (3) Formerly GERM 384. An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Readings and instruction in English.

GERM 287 Ancient Indic Culture and Civilization (3) Formerly GERM 385. An introduction to the culture and civilization of Ancient India: religion, literature, arts, and law of the vedic period; younger Hinduism, and Buddhism. Reconstruction of each period's lifestyle with emphasis on the historic development of the principles which ruled everyday activities. Instruction and readings in English.

GERM 288 Ancient Celtic Culture and Civilization (3) Formerly GERM 382. An introduction to the culture and civilization of the Ancient Celts: religion, arts, and literature. Reconstruction of each period's lifestyle with emphasis on the historic development of the principles which ruled everyday activities. Instruction and readings in English.

GERM 289 Selected Topics in the Cultures of the German Speaking Countries (3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Topics in the cultures of the German speaking countries.

GERM 299 Special Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

GERM 301 Conversation and Composition I (3) Prerequisite: GERM 202 or equivalent. Practice in contemporary spoken and written German. Systematic review of grammar, and exercise in composition. Emphasis on cultural contrasts.

GERM 302 Conversation and Composition II (3) Prerequisite: GERM 301 or equivalent. Continuation of GERM 301.

GERM 319 Selected Topics in Germanic Language Studies (1-3) Prerequisite: GERM 202 or equivalent. Repeatable to 6 credits if content differs.

GERM 321 Highlights of German Literature I (3) Prerequisite: GERM 220 or equivalent. Selected masterworks from different periods of German literature: middle ages, reformation, baroque, 18th century, classicism. Readings and instruction in German.

GERM 322 Highlights of German Literature II (3) Prerequisite: GERM 220 or equivalent. Selected masterworks from different periods of German literature: romanticism, Biedermeier, Junges Deutschland, realism, naturalism and its counter currents, expressionism to the present. Readings and instruction in German.

GERM 339 Germanic Languages in Translation (3) Repeatable to 6 credits if content differs. Selected movements, genres or other special topics in German literature. Readings and instruction in German.

GERM 349 Germanic Languages in Translation (3) Repeatable to 6 credits if content differs. Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Readings and instruction in English.
GERM 360 Women in Scandinavian Literature (3) Prerequisite: A literature, culture, diversity course or permission of department. Introduction to and examination of women's creative work in Scandinavia from the Middle Ages to the present.

GERM 368 Scandinavian Civilization (3) Repeatable to 6 credits if content differs. Literary, artistic and historic traditions, folklore and superstition, customs and lifestyle shared by Scandinavian nations. Readings and instruction in English.

GERM 369 Scandinavian Literature in Translation (3) Repeatable to 6 credits if content differs. Study of a major Scandinavian author, genre, period or theme. Readings and instruction in English.

GERM 381 German Civilization I (3) A survey of the literary, educational and artistic traditions, great men and women, customs and general culture of the German-speaking world from the beginnings to the middle of the 18th century. All readings and instruction are in English.

GERM 382 German Civilization II (3) A continuation of GERM 381 covering development of German, Austrian and Swiss civilizations from the middle of the 18th century to the present. All readings and instruction are in English.

GERM 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. Open enrollment in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

GERM 389 Topics in Germanic Culture (3) Repeatable to 6 credits if content differs. Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. In English.

GERM 397 Honors Reading (Independent Study) (3) Supervised Reading to be taken normally only by students admitted to honors program.

GERM 398 Honors Research (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Prepares students to write an honors thesis. Under the direction of a German department faculty member, students write their honors thesis.

GERM 399 Selected Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

GERM 401 Advanced Conversation (3) Prerequisite: GERM 302 or equivalent. Development of fluency in spoken German. Discussion of contemporary issues.

GERM 403 Advanced Composition (3) Prerequisite: GERM 302 or equivalent. Advanced writing in German.

GERM 405 Stylistics (3) Prerequisite: GERM 302 or equivalent. Stylistic analysis of oral and written German both literary and non-literary. Intensive study of vocabulary and syntax. Dictionary and composition exercises.

GERM 411 German for International Business I (3) Prerequisite: course in German or permission of department. Vocabulary and grammar limited exclusively to reading skill; graded readings in the arts and commerce. Course in English; cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 412 German for International Business II (3) Prerequisite: GERM 411 or equivalent or permission of department. Continuation of GERM 411.

GERM 415 German/English Translation I (3) Does not fulfill major requirements in German. Not open to students who have completed either GERM 101, GERM 102, GERM 201, GERM 202, GERM 301 or GERM 302. An intensive presentation of German grammar limited exclusively to reading skill: graded readings in the arts and commerce. Course in English; cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 416 German/English Translation II (3) Prerequisite: GERM 415 or equivalent. Written translation of materials from the student's field of study. Discussion of basic problems of German-to-English translation, with examples from students' projects. Instruction in English. Cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 419 Selected Topics in German Language Study (3) Prerequisite: GERM 302 or equivalent or permission of department. Repeatable to 6 credits if content differs.

GERM 421 Literature of the Middle Ages (3) Prerequisite: GERM 302 or permission of department. GERM 421 covers the literature from the 8th through the 15th centuries. Readings include Old High German texts; the German heroic, courtly and popular epic; Minnesinger, Middle High German, Prayer Book and the late Medieval epic. Readings of representative authors from the Middle Ages. Read in modern German translation.

GERM 422 From the Reformation Through the Baroque (3) Prerequisite: GERM 321 and GERM 322 or permission of department. Readings of representative authors from the period of the Reformation and the period of humanism through the baroque (ca. 1450-1700). Readings and instruction in German.

GERM 423 From Enlightenment Through Storm and Stress (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the Enlightenment (1720-1785), the Age of Sentimentalism (1740-1800), and Storm and Stress (1767-1785). Readings and instruction in German.

GERM 424 Classicism (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the Age of Classicism (1786-1832). Readings and instruction in German.

GERM 431 Romanticism and Biedermeier (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the periods of Romanticism (1798-1835) and Biedermeier (1820-1850). Readings and instruction in German.

GERM 432 Junges Deutschland and Realism (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings and instruction in German. Readings of representative authors from the periods of Junges Deutschland (1830-1850) and Realism (1850-1890). Readings and instruction in German.

GERM 433 Naturalism and its Counter Currents (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the period of naturalism and its counter currents (1880-1920). Readings and instruction in German.

GERM 434 Expressionism to 1945 (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from Expressionism through the period between the wars to the contrast of Nazi and Exile Literature (ca. 1910-1945). Readings and instruction in German.

GERM 435 From 1945 to the Present (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from Germany, Austria, and Switzerland in the period from the end of World War II to the present. Readings and instruction in German.

GERM 439 Selected Topics in German Literature (3) Prerequisites: (GERM 321 and GERM 322) or permission of department. Repeatable to 6 credits if content differs. Special study of an author, school, genre, or theme. Readings and instruction in German.

GERM 449 Selected Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.

GERM 461 Reading Swedish, Danish and Norwegian I (3) Not grammar or stress in the Indo-European origin and comparison with classical and modern European languages.

GERM 477 Sanskrit I (3) Prerequisite: GERM 476. In-depth study of the basic grammatical introduction. Reading of epic, folkloric, and vedic texts.

GERM 479 Selected Topics in Germanic Philology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Specialized topics such as comparative Indo-European studies, Old Norse language or readings in Old Norse literature, modern German dialectology.

GERM 489 Selected Topics in Area Studies (1-3) Prerequisite: GERM 302 or equivalent or permission of department. Repeatable to 6 credits if content differs.

GERM 498 Honors Thesis Writing (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Required for students pursuing departmental honors in Germanic languages and literatures. Under the direction of a German department faculty member, students write their honors thesis.

GERM 499 Directed Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

GREK — Greek

GREK 101 Elementary Ancient Greek I (4) A student who has had two units of Greek in high school registers for GREK 101 for purposes of review but not for credit. Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.

GREK 102 Elementary Ancient Greek II (4) Prerequisite: GREK 101. Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.

GREK 201 Intermediate Ancient Greek (4) Prerequisite: GREK 102 or equivalent. Advancing beyond the basic skills developed in GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.

GREK 301 Scenes from Athenian Life (3) Credit will be granted for only one of the following: GREK 301 or GREK 351. Formerly GREK 103DR. Makes the transition from grammar review, prose composition, and selection of topics specific to reading. Focus on selected aspects of life in Athens: marriage, friendship, the courts, festival, theatre. Reading selections in Greek by three authors: Lysias, Plato, and a playwright (e.g., Menander).

GREK 402 Greek Philosophers (3)

GREK 403 Greek Tragedy (3)

GREK 415 Homer (3) Prerequisite: permission of department. Extensive readings in Greek from the Iliad and the Odyssey, with special attention to the features of Homeric style and the similarities and differences between the two epics.

GREK 472 History and Development of the Greek Language (3) Prerequisite: permission of instructor. Mastery of ancient Greek through grammar review, prose composition, and analysis of historical developments in Greek writers' modes of expression.

GREK 488 Greek Readings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Greek authors. Reports.

GREK 499 Independent Study in Greek Language and Literature (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

GVPT — Government and Politics

GVPT 100 Principles of Government and Politics (3) A study of the basic principles and concepts of political science.

GVPT 170 American Government (3) A comprehensive study of national government in the United States.

GVPT 200 International Political Relations (3) Prerequisite: GVPT 100. A study of the major factors underlying international relations, the methods of conducting foreign relations, the foreign policies of the major powers, and the means of avoiding or alleviating international conflicts.

GVPT 210 Introduction to Public Administration and Policy (3) Prerequisite: GVPT 170. An introduction to the study of the administrative process in the executive branch with an examination of the concepts and principles of administration and their relationship to public policy. The organizational structure, theory and the behavior of participants in the administration of policy.

GVPT 220 Introduction to Political Behavior (3) Prerequisite: GVPT 100 or GVPT 170. Development, concepts and techniques of the behavioral approach to political science and other recent developments in the field.
and contemporary racial cleavage in the United States with computer technology in an interactive simulation involving GVPT 306 Global Ecopolitics (3)

America; and in which internal politics develop.

institutions, processes and problems, and the socio-economic level in the United States. Policy making will be described and analyzed in terms of major actors, relationships, and characteristics.

The Politics of Race Relations in the United States (3)

Study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.

GVPT 403 Law, Morality and War (3) Prerequisite: GVPT 200. An exploration of fundamental moral and legal issues concerning war.

GVPT 405 Defense Policy and Arms Control (3) Prerequisite: GVPT 170. An introduction to the theories of rational choice including theories of negotiation and bargaining, elections and voting in democratic and non-democratic systems, and the role of media in international relations.

GVPT 406 Problems of International Cooperation (3) Prerequisite: GVPT 200. The analysis of the problems inherent in international cooperation with applications to such specific international issues as the environment, human rights, economic development and conflict resolution.

GVPT 407 International Political Economy (3) Prerequisite: GVPT 200. Introduces the field of international political economy, which analyzes the ways in which economic and political changes produce both economic and political reactions.

GVPT 409 Seminar in International Relations and World Politics (3) Repeatable to 6 credits if content differs. Reading, writing, and research on topics in international relations and world politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

GVPT 411 Public Personnel Administration (3) Prerequisite: GVPT 170. A survey of personnel administration, including the development of merit civil service, the personnel agency, classification, recruitment, examination techniques, performance appraisals, training, and employee relations, and retirement.

GVPT 412 Public Financial Administration (3) Prerequisite: GVPT 200. A survey of governmental financial procedures, including processes of current and capital budgeting, the authorization of public borrowing, the techniques of public purchasing, and the machinery of control through preaudit and post-audit.

GVPT 419 Seminar in Public Policy (3) Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public policy. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

GVPT 422 Quantitative Political Analysis (3) Prerequisite: GVPT 200. Introduction to quantitative methods of data analysis, including selection of statistical methods, block analysis, content analysis, and scale construction.

GVPT 423 Elections and Electoral Behavior (3) Prerequisite: GVPT 200. An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.

GVPT 424 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT 170. An introduction to the major theories of political behavior, with emphasis on the role of the judiciary in the interpretation and enforcement of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.

GVPT 426 Public Opinion (3) Prerequisite: GVPT 220. An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda and pressure groups.

GVPT 427 Political Sociology (3) Prerequisite: GVPT 220. A study of the societal aspects of political life including selected aspects of the sociology of group formation and group dynamics, political association, community integration and participation, and community conflict.

GVPT 428 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT 221 or permission of department. Repeatable to 6 credits if content differs. An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional analysis, and coalition formation. Some of the topics will involve research projects.

GVPT 429 Problems in Political Behavior (3) Prerequisite: GVPT 220. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

GVPT 431 Introduction to Constitutional Law (3) Prerequisite: GVPT 221. A systematic introduction to the basic principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.
GVPT 432 Civil Rights and the Constitution (3) Prerequisite: GVPT 231. A study of the constitutional protection of civil rights, with emphasis on the Department of Justice and the courts.


GVPT 434 Race Relations and Public Law (3) Prerequisite: GVPT 231. A political and legal examination of the constitutionally protected rights affecting racial minorities and of the constitutional power of the federal courts, congress, and the executive to define, protect and extend these rights.

GVPT 436 The Legal Status of Women (3) Prerequisite: GVPT 231. All credit will be granted for one of the following: GVPT 436 or WMST 436. An examination of gender interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

GVPT 439 Seminar in Public Law (3) Repeatable to 6 credits if context differs. Reading, writing, and research on topics in public law. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

GVPT 441 History of Political Theory: Ancient and Medieval (3) Prerequisite: GVPT 100. A survey of the principal political theories set forth in the works of writers before Machiavelli.

GVPT 442 History of Political Theory—Medieval to Recent (3) Prerequisite: GVPT 100. A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.

GVPT 443 Contemporary Political Theory (3) Prerequisite: GVPT 100. A survey of the principal theories and ideologies set forth in the works of writers from Karl Marx to the present.

GVPT 444 American Political Theory (3) Prerequisite: GVPT 100 or GVPT 200. An analysis of the development and growth of American political concepts from the Colonial period to the present.

GVPT 445 Marxism and Postmarxism (3) Prerequisite: GVPT 100. The study of Marxist thought and an assessment of the critical transformations and reassessments of the theory and practice of Marxism.

GVPT 446 Psychoanalysis and Politics (3) Prerequisites: GVPT 100 and GVPT 340. Psychological sources of individual and group behavior as applied to political phenomena such as voting, war, revolution, and genocide.

GVPT 447 Islamic Political Philosophy (3) The writings of one or several authors from the Islamic philosophical tradition today are examined in order to see how they understand the conflicting claims of revelations and unaided human reason about the best regime, justice, and human virtue.

GVPT 448 Non-Western Political Thought (3) Prerequisite: GVPT 100; permission of department required for repeat. Examination of works by major authors and general themes of political philosophy in the world outside the Middle East, among others. This is not a survey of all non-western political thought, but a course to be limited by the professor with each offering.

GVPT 449 Seminar in Political Philosophy (3) Repeatable to 6 credits if context differs. Reading, writing, and research on topics in political philosophy. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

GVPT 450 Comparative Study of Foreign Policy Formation (3) Prerequisite: GVPT 280. The opportunity to learn the theoretical underpinnings of foreign policy decision-making and to apply this knowledge in a simulation of a "real world" negotiation arena.

GVPT 451 Foreign Policies of Russia and the States of the Former Soviet Union (3) Prerequisite: GVPT 280 or GVPT 282. A study of the foreign policies of Russia and the other states of the former Soviet Union, with attention paid to the processes of policy formation and the forces and conditions that make for continuities and changes.

GVPT 453 Recent East Asian Politics (3) Prerequisite: GVPT 280 or GVPT 282. A study of the foreign policies of Russia and the other states of the former Soviet Union, with attention paid to the processes of policy formation and the forces and conditions that make for continuities and changes.

GVPT 455 Contemporary Middle Eastern Politics (3) Prerequisite: GVPT 280 or GVPT 282. A study of the foreign policies of Russia and the other states of the former Soviet Union, with attention paid to the processes of policy formation and the forces and conditions that make for continuities and changes.

GVPT 457 American Foreign Relations (3) Prerequisite: GVPT 280 or GVPT 282. An examination of American foreign relations, with emphasis on the conduct of America’s foreign relations, with emphasis on the Departments of State and Defense, and an assessment of the major foreign policies of the United States.

GVPT 459 Seminar in Comparative Politics (3) Repeatable to 6 credits if context differs. Reading, writing, and research on topics in comparative politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

GVPT 460 Problems in State and Local Government (3) Prerequisite: GVPT 260. A study of the structure, processes and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, with attention and illustrations from Maryland governmental arrangements.

GVPT 461 Metropolitan Government (3) Prerequisite: GVPT 260. An examination of administrative problems relating to public service, planning and coordination in a metropolitan environment.

GVPT 462 Urban Politics (3) Prerequisite: GVPT 260. Urban political process and institutions considered in the light of changing social and economic conditions.

GVPT 473 Legislatures and Legislation (3) Prerequisite: GVPT 170. A detailed study of lawmaking and the legislative process, emphasizing the U.S. Congress and its members.

GVPT 474 Political Parties (3) Prerequisite: GVPT 170. An examination of the political parties of the United States, including nominations, elections, and political leadership.

GVPT 475 The Presidency and the Executive Branch (3) Prerequisite: GVPT 170. An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president’s place in policymaking, administration, and public opinion.


GVPT 479 Seminar in American Politics (3) Repeatable to 6 credits if context differs. Reading, writing, and research on topics in American politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

GVPT 480 Comparative Political Systems (3) Prerequisite: GVPT 280 or GVPT 282. A study, along functional lines, of major political institutions, such as legislatures, executives, courts, bureaucracies, public organizations, and political parties.

GVPT 481 Government and Administration of Russia and the States of the (3) Former Soviet Union Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the states of the former Soviet Union.

GVPT 482 Government and Politics of Latin America (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the Latin American countries.

GVPT 483 Government and Politics of Asia (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of governments and politics of Asian countries.

GVPT 484 Government and Politics of Africa (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 485 Government and Politics of the Middle East (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the Middle Eastern countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 486 Comparative Studies in European Politics (3) Prerequisite: GVPT 280 or GVPT 282. Comparative studies in the forms of government, political processes, and public policies in European countries.

GVPT 492 The Comparative Politics of Race Relations (3) Prerequisite: GVPT 280 or GVPT 282. Impact of government and politics on race relations in various parts of the world. The origins and evolution of the original North American racial policies of segregation, apartheid, integration, assimilation, partnership, and nonracialism will be analyzed.
HESP 388 Undergraduate Research Externship (1-3)
Prerequisite: HESP 202, HESP 305, HESP 300. 300, permission of department. 28 semester hours. Sophomore standing. Off-Campus research internship with departmental affiliation. Research conducted in American and regional universities. Contact department chairman for openings and descriptions of eligible placements.

HESP 400 Speech and Language Development in Children (3)
Prerequisite: HESP 300 with a grade of "C" or better, or permission of department. Recommended: HESP 120 or UNIC 200. Analysis of the normal processes of speech and language development in children.

HESP 402 Speech Pathology I (3) Prerequisite: HESP 400 with a grade of "C" or better, or permission of department. An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.

HESP 404 Speech Pathology II (3) Prerequisite: HESP 305 with a grade of "C" or better, or permission of department. Language, assessment and therapeutic management of phonation, resonance, and fluency disorders in children and adults.

HESP 406 Speech Pathology III (3) Prerequisites: HESP 300 and HESP 305) with a grade of "C" or better or permission of department. Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.

HESP 407 Bases of Hearing Science (3) Prerequisite: HESP 311 with a grade of "C" or better or permission of department. Fundamentals of hearing, including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception, and topics in psychoacoustics.

HESP 411 Introduction to Audiology (3) Prerequisite: HESP 311 with a grade of "C" or better or permission of department. An introduction to the field of audiology. Evaluation and remediation of hearing handicaps.

HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisites: HESP 311, HESP 402, and HESP 411 with a grade of "C" or better, or permission of department. The principles underlying the treatment of speech, language and hearing disorders in children and adults.

HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3) Prerequisite: HESP 417 with a grade of "C" or better, or permission of department. Repeatable to 6 credits. Supervised observation with some direct participation.

HESP 420 Deafness and Sign Language (3) Credit will be granted for only one of the following: HESP 498A or HESP 420. An introduction to American Sign Language and Deaf Culture.

HESP 422 Neurological Bases of Human Communication (3) Prerequisite: HESP 305 or permission of instructor. Credit will be granted for only one of the following: HESP 498B or HESP 422. Basic neurology as it pertains to anatomy and physiology substrates of speech and language.


HESP 438 Seminar: Special Issues in Early Childhood Special Education (1-3)

HESP 469 Honors Thesis Research (1-3) Prerequisite: Honors thesis advisor's approval. Repeatable to 6 credits if content differs. Student will develop thesis proposal, conduct research, analyze results, and defend final written document.

HESP 498 Seminar (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics in human communication and its disorders.

HESP 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.

HIST — History

HIST 106 American Jewish Experience (3) Also offered as JWST 141. Credit will be granted for only one of the following: HIST 106 or JWST 141. History of the Jews in America from colonial times to the present. Emphasis on the ways of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic and political life.

HIST 310 The Ancient World (3) Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

HIST 111 The Medieval World (3) The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.


HIST 113 Modern Europe: 1789 - Present (3) Evolution of modern nation states. Industrial-economic structure and demography. Emergence of modern secular society.

HIST 120 Islamic Civilization (3) Introduction to society and culture of the Islamic world from earliest times to 1800. Topics of study include origins of Islamic societies, Nile Valley civilization, medieval African states and societies, Islam, oral traditions, African slavery and the slave trade, and early African-European interactions.


HIST 126 Jewish Civilization (3) Also offered as JWST 121. Credit will be granted for only one of the following: HIST 126 or JWST 121. Formerly HIST 105. Jewish history, culture, and society from Biblical times to the present.

HIST 127 History of the United States to 1865 (3) The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.

HIST 128 History of the United States since 1865 (3) The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United States as a world power.

HIST 170 The Humanities I (3) Cultural development of Western civilization from prehistoric times to the Renaissance. Influences on the common cultural heritage of Western civilization.

HIST 174 Introduction to the History of Science (3) Formerly HIST 200. Major issues in the development of modern science. Specific examples of discoveries and theories from the viewpoint of theories of historical change, philosophies of science, and interaction of science with philosophy.

HIST 175 Science and Technology in Western Civilization (3) Key periods of change in science and technology; the causes and effects of these changes beginning with prehistory and ending with the current century.


HIST 178 Biography in History (3) Repeatable to 6 credits if content differs. Biography of leaders, lives, times, and works of important and visible figures in world history. Concern for both the theory of the individual in history and close examination of the single person. Course content changes semester to semester.

HIST 180 The Chinese World (3) An introduction to China, both traditional and modern. Aspects of Chinese culture, including language, family, history, art, and agriculture.

HIST 209 Selected Topics (3) Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.
HIST 255 African American History, 1865 - Present (3) An introduction course in the African American experience in the United States from 1865 to present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, the Civil War I and II, Civil Rights Movements, and the Black Power Movement.

HIST 257 The American West in History and Imagination (3) Examines the American West from two perspectives — as a place of fixed experience and as an idea for which much of the Western US's national vision has evolved. Emphasizes the experiences of Native American and colonizing Euro-American peoples in regional context, and the interplay between historical realities and national mythology.

HIST 265 Social and Cultural History of Modern America (3) An interdisciplinary course in the Civil War to the present. An examination of the social interactions comprising the rise of male-dominated, business-oriented urban culture. Concentrates on how social forces clashed and cooperated to produce the modern United States: “business republicanism”; urban workers; intellectuals; rural populists; immigrants; women and women's movements. The crosscurrents of a “free society” wrestling with contradictions of the democratic experiment.

HIST 266 The United States in World Affairs (3) A study of the United States as an emerging world power and the American response to world affairs. Emphasis on relationship between internal and external development of the nation.

HIST 275 Law and Constitutionalism in American History (3) An exploration of the role of law and the legal and political order between 1750 and 1950. Discussion of important historical issues—religious liberty, economic development, slavery, the Civil War, the political economy of industrialization, the creation of the modern state—from a legal and constitutional perspective.

HIST 280 Reconstructing the Civilization of Ancient Mesopotamia (3) Also offered as JWST 227. Not open to students who have completed HEBR 440. Credit will be granted for only one of the following: HIST 280 or JWST 227. Formerly HEBR 440. History and culture of Ancient Mesopotamia reconstructed from archaeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

HIST 281 The Rabbinic Movement: History and Culture (3) Also offered as JWST 230. Credit will be granted for only one of the following: HIST 281 or JWST 230. Introduction to the Rabbinic movement and its history, first to seventh century CE. Survey of the essential texts of ancient Rabbinic literature, both halakhic (legal) and aggadic (nonlegal).

HIST 282 History of the Jewish People I (3) Also offered as JWST 233. Credit will be granted for only one of the following: HIST 282 or JWST 233. Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Benei Yisrael and its subsequent encounter with medieval Christian and Islamic civilizations.

HIST 283 History of the Jewish People II (3) Also offered as JWST 235. Credit will be granted for only one of the following: HIST 283 or JWST 235. Formerly HEBR 440. History and culture of Ancient Mesopotamia reconstructed from archaeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

HIST 305 The Eastern Orthodox Church: Its Cultural History and Modernization (3) A course in the development of the Church in the Near East and Eastern Europe from the conversion of Constantine to the present. Emphasis on the relations between church history, political history, and the influence of the modern era on the Eastern Christendom on the cultures of traditionally Eastern Orthodox nations.

HIST 306 History of Religion in America (3) A history of religion, religious movements, and churches in America from the colonial period to the early Christian era. Special attention to the relations between church and society.

HIST 307 The Holocaust of European Jewry (3) Also offered as JWST 345. Credit will be granted for only one of the following: HIST 307 or JWST 345. Roots of Nazi Jewish policy in the historical context, including the development and implementation of the “final solution of the Jewish problem” in Europe, and the responses made by the Jews to the Holocaust. Consent of the instructor required.

HIST 309 Proseminar in Historical Writing (3) For HIST majors only. Discussions and research papers designed to acquaint the student with the methods and problems of research and presentation. Students will be encouraged to examine those phases of history which they regard as their specialties. Restricted to history majors. Non-majors admitted by permission of the department on a space-available basis.

HIST 312 Crisis and Change in the United States (3) Prerequisite: one course in historical crises, controversies, and readjustments in the United States.

HIST 313 Crisis and Change in European Society (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in European society.

HIST 314 Crisis and Change in the Middle East and Africa (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in the Middle East and Africa.

HIST 315 Crisis and Change in East Asia (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in East Asia.

HIST 316 Crisis and Change in Latin America (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in Latin America.

HIST 319 Special Topics in History (3) Repeatable to 6 credits if content differs.

HIST 320 Early Christianity: Jesus to Constantine (3) Prerequisite: one course in ancient history at the 200 level. Also offered as JWST 331. Credit will be granted for only one of the following: HIST 320 or JWST 331. Social and religious history of early Christianity from its origins in the first century to the reign of Constantine.

HIST 321 Biblical History and Culture (3) Also offered as JWST 332. Not open to students who have completed HEBR 333. Credit will be granted for only one of the following: HIST 321 or JWST 332. Formerly HEBR 332. Formerly HIST 321. Study of the political, social and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical and rabbinical texts, and on the materials from neighboring cultures to reconstruct political history and the development of religious concepts.

HIST 324 Classical Greece (3) The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian war, and the intellectual circle of Socrates.

HIST 325 Alexander the Great and the Hellenistic Age (3) The history of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

HIST 326 The Roman Republic (3) Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conflicts with its foreign enemies, and Roman politics and political forces which brought it about, and the consequent transformation and decline of the republic.

HIST 327 The Roman Empire (3) Roman history from Augustus to Heracles, 44 B.C.-A.D. 641. The Imperial court and the government of Rome; the empire's various cities and provinces, the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

HIST 330 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3) From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

HIST 331 Europe in the High Middle Ages: 1000-1250 (3) Major historical crises, controversies, and readjustments in the High Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political and policy theory. Recommended as a sequel to HIST 330.

HIST 332 Europe During the Renaissance and Reformation I (3) Continental Europe from 1450 to 1650: development and spread of Renaissance culture; growth in the powers of central government; economic expansion and beginnings of overseas colonization; division of Western Christendom into two rival religious camps. Particular emphasis on the Protestant and Catholic reformations and their consequences for Europe's political, social, and cultural development. Renaissance and reformation, 1450-1555. The age of religious wars, 1555-1650.

HIST 333 Europe During the Renaissance and Reformation II (3) Continuation of HIST 332.

HIST 334 The Age of Absolutism, 1600-1715 (3) Europe in the age of Louis XIV, with emphasis upon social, religious, and cultural developments.

HIST 335 Society, Ideas and Culture in the Old Regime, 1715-1789 (3) Europe during the French revolution and Napoleonic period. Intellectual, social, and cultural movements in revolutionary Europe.

HIST 336 Europe in the 19th Century, 1815-1919 (3) The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

HIST 337 Europe in the World Setting of the 20th Century (3) Political, economic and cultural developments in 20th-century Europe with special emphasis on the factors involved in the two World Wars and their global impacts and significance.

HIST 340 Nationalism and Communism in Eastern Europe (3) National states, ethnic conflict and communist parties across the 20th century, including the collapse of the Soviet bloc regimes and the break-up of Yugoslavia.

HIST 341 History of Anti-Semitism (3) The historical development of anti-Semitism in its European context. Anti-Semitism both as a set of ideas and as a political movement from the ancient era to the present, with emphasis on the modern era.

HIST 342 Fascism: Theory and Practice (3) The origins and history of fascism in Europe, 1918-1945. Emphasis divided between the industrialized (or industrializing) nations and the largely agrarian countries of Europe. The rise of fascism in other parts of the world.

HIST 344 Revolutionary Russia (3) An exploration of the roots, dynamics and consequences of the Russian Revolution of 1917. Major interpretations of the fall of tsarism, social and political forces that shaped the Russian state into a totalitarian society.

HIST 346 Social and Cultural History of Europe (3) An exploration of social structure, life styles, rituals, symbols, and myths of the peoples of Europe.


HIST 351 Social History of Washington, D.C. (3) Development of the “resident city” of Washington: neighborhoods, schools, places of worship, economic establishments, and local population groups.

HIST 352 America in the Colonial Era, 1600-1763 (3) The founding of the English colonies in America and their European backgrounds, the reasons for the instability of colonial society to 1689 and the emergence of a stable society after 1689; the development of colonial regionalism, political institutions, social divisions, the economy, religion, education, urban and frontier problems in the eighteenth century.

HIST 353 America in the Revolutionary Era, 1763-1815 (3) Colonial will be granted for only one of the following: HIST 352 or HIST 361. The background and course of the American Revolution and early nationhood through the War of 1812. Economic, social and political development, the creation of a new government under the Constitution, and the challenges facing the new nation.
HIST 354 Ante-Bellum America 1815-1861 (3) Recommended: HIST 356 or HIST 357. Credit will be granted for only one of the following: HIST 354 or HIST 363. Traces how the strong nationalism after the War of 1812 transformed into the American civil war. The course concentrates on the controversies over slavery and other issues contributing to North-South antagonism, including Jacksonian democracy, religious manifest destiny and religious, social, and intellectual movements, each of which produced its own social tensions and tensions.

HIST 355 Civil War and the Rise of Industrialization, 1860-1865 (3) Credit will be granted for only one of the following: HIST 355 or HIST 364. Civil War, sectional and class conflicts and their impact on American life and institutions from the beginning of the 18th century through the Gilded Age; social, economic, and political reconstruction of the Union, industrialization, urbanization, and technological changes.

HIST 356 Emergence of Modern America, 1900-1945 (3) Recommended: HIST 157 or HIST 211. Credit will be granted for only one of the following: HIST 356, HIST 365 or HIST 366. The emergence of modern institutions and identities, 1900-1945. These institutions may include corporate enterprises and the state; others may include homosexuality, the New Woman and the New Negro.

HIST 357 Recent America: 1945-Present (3) Also offered as JWST 342. Credit will be granted for only one of the following: HIST 357 or JWST 344. Continuation of HIST 356. Major historical topics and issues and their impact on American life and institutions from the 1940s to the present. The course is designed to present a partial survey of American political, social, and religious history of the postwar years from the perspective of contemporary students. The course focuses on the sources of technological change.

HIST 370 Jews and Judaism in Antiquity I: Sixth Century BCE through the Babylonian Exile (3) Also offered as JWST 344. Credit will be granted for only one of the following: HIST 370 or JWST 325. Political, social, religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the emergence of a Jewish national identity in the 19th century.

HIST 371 Jews and Judaism in Antiquity II: First through Seventh Century (3) Recommended: HIST 370. Also offered as JWST 326. Credit will be granted for only one of the following: HIST 371 or JWST 326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the emergence of a Jewish national identity in the 19th century.

HIST 373 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3) Also offered as JWST 343. Credit will be granted for only one of the following: HIST 373 or JWST 344. 3 credits. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

HIST 375 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as JWST 344. Credit will be granted for only one of the following: HIST 375 or JWST 344. Continuation of HIST 373. 3 credits.

HIST 376 History of Zionism and the State of Israel (3) Also offered as JWST 327. Credit will be granted for only one of the following: HIST 376 or JWST 342. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; the evolution of the state; the social and religious Zionists, and the revisionists; diplomatic activities; Arab-Israeli conflict; post-1948 Israeli society.

HIST 380 American Relations With China and Japan, 1740-1945 (3) Recommended: HIST 370. Credit will be granted for only one of the following: HIST 380 or JWST 345. Diplomacy and power politics; Christian missions; immigration and exclusion; overseas education; art and literature; science and religion; theories about the Chinese and Japanese civilizations; the impact of European culture on Chinese and Japanese society; the rise of sovereign nation-states; shifting political and economic power groupings within a regional and global context.

HIST 395 Honors Colloquium I (3) Prerequisite: permission of department. For HIST majors only. History and theory: the conceptual underpinnings of the historical discipline. Students evaluate several contrasting theories of history. Prerequisite for other honors courses.

HIST 396 Honors Colloquium II (3) Prerequisite: HIST 395. Credit will be granted for only one of the following: HIST 396 or HIST 397. A seminar approach to examine a major problem of historical interpretation across two or more diverse cultures in different historical periods. Focus on the city in history, gender, slavery and emancipation, and modernization.

HIST 398 Honors Thesis (3) Prerequisite: HIST 396. Credit will be granted for only one of the following: HIST 397 or HIST 398. Students in this course work independently on a major research project in consultation with a faculty advisor. The project may be taken independently of the others.

HIST 401 The Origins of Modern Science from Aristotle to Newton (3) Prerequisite: HIST 310. An examination of the development of modern science from the ancient world to the Newtonian worldview. Major segments are devoted to the Kievan Rus state, Mongol rule, Muscovite autocracy, the absorption of Ukraine, and the advent of Modernization, westernization and secularization in a traditional society; the rise of sovereign nation-states; shifting political and economic power groupings within a regional and global context.

HIST 402 The Development of Modern Physical Science: From Newton to Einstein (3) Prerequisites: HIST 310 and PHYS 110 or PHYS 112 or PHYS 117 or equivalent. The history of physics in the 18th and 19th centuries, including connections with mathematics, technology, chemistry and planetary science. Emphasis on internal technical developments in physical theory, with discussion of experimental, philosophical and sociological issues. Prerequisite for only one of the following: HIST 402, HIST 402, PHYS 490; each part may be taken independently of the others.

HIST 403 20th Century Revolutions in the Physical Sciences (3) Also offered as JWST 346. Credit will be granted for only one of the following: HIST 403 or JWST 346. Major changes in knowledge of the physical world, including quantum theory, atomic structure, relativistic cosmology, and continental drift: plate tectonics; theories about the nature of scientific revolutions.

HIST 404 History of Modern Biology (3) The internal development of biology in the 19th and 20th centuries, including evolution, cell theory, heredity and development, spontaneous generation, and mechanism-vitalism. Emphasis on the scientific and social controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

HIST 405 Environmental History (3) An introduction to the key issues and methods of environmental history. The scope of the subject is discussed, as well as its relationship with other disciplines, such as ecology, anthropology, and geography. A primary focus is environmental change in history with emphasis on the American experience.

HIST 406 History of Technology (3) Not open to students who have completed HIST 407 prior to Fall Semester, 1989. The changing character of technology in modern history, beginning with the Middle Ages, based on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

HIST 407 Technology and Social Change in History (3) Students with HIST 407 prior to Fall Semester 1989 must have permission to enroll in this course. Social consequences of technological innovations and the ways in which societies have coped with new technologies.

HIST 410 Introduction to Archives I (3) Prerequisite: permission of department. Corequisite: HIST 411. History of the basic intellectual problems relating to archives and manuscript repositories; emphasis on problems of selection, access, preservation, invention, and editing as well as the variety of institutions housing documents.

HIST 411 Introduction to Archives II (3) Prerequisite: permission of department. Corequisite: HIST 410. Practical experience through placement in cooperating archives or manuscript centers. Topics include the genealogy of Annapolis /Washington, D.C. areas. Assignments to specific projects based on intellectual interest of students.

HIST 414 History of European Ideas I (3) Review of the basic Western intellectual traditions as a heritage from the ancient world. Origins of the current society; the sources of scientific revolution of the 16th and 17th centuries to the end of the 18th century.

HIST 415 History of European Ideas II (3) A continuation of HIST 414 emphasizing 19th and 20th-century thought.

HIST 418 Jews and Judaism: Selected Historical Topics (3) Repeatable to 6 credits if content differs.

HIST 419 Special Topics in History (3) Repeatable to 9 credits if content differs.
HLTH 377 Human Sexuality (3) The biological and development of sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexuality; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

HLTH 380 Peer Education: Alcohol and Other Drugs (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: consent of department. Peer training dealing with drug information and abuse to facilitate workshops in various outreach locations (dorms, Greek system, classrooms).

HLTH 381 Peer Education: Stress Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 230. Peer training in different forms of stress management to facilitate coping with stress, are preventive in nature; and are suitable for learning by healthy individuals in the health care system.

HLTH 382 Peer Education: Sexuality and Communication (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 377; and permission of department. Peer training in communication and issues of sexuality to facilitate workshops in various outreach locations (dorms, Greek system, classrooms).

HLTH 383 Peer Education: Reproductive Health (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 377 and consent of department. Peer training in reproductive methods of birth control, sexually transmitted disease and AIDS education to facilitate workshops in the student Health Center and various outreach locations (dorms, Greek system, classrooms).

HLTH 389 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 391 Introduction to Community Health (3) Prerequisites: HLTH 140 and HLTH 230. Broad overview of community health. Health promotion, consumer health, public health, school health, environmental health, preventive medicine, human biology, and the health care system are examined. Each area's contribution to community health is discussed.

HLTH 400 Service/Learning in Health Education (3) Prerequisite: permission of department. For HLTH ED majors only. 56 semester hours. Junior standing. Application of health education knowledge and skills to serve health education needs in the community. Combines community service with preparation and reflection.

HLTH 420 Methods and Materials in Health Education (3) Prerequisites: HLTH 105 or HLTH 140. The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of teaching aids and learning situations associated with teaching. The course is designed to be offered as a seminar or as an individual study. The course is intended for students who have completed at least one semester of a course in health education. The course content is determined by the students and the instructor.

HLTH 421 Health Education in the Workplace (3) A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to inform workers and management, and health promotion programs in the workplace.

HLTH 427 Consumer Behavior (3) Prerequisites: PSYC 100; and SOC 100. Credit will be granted for only one of the following: CHE 437 or HLTH 437. An applied approach to the behavioral sciences to a study of consumer behavior. Current theories, models and empirical research findings are explored.

HLTH 430 Health of Children and Youth (3) A study of the health of 5 to 18 year olds. Physical, mental, social, and emotional development; the health care system; and the roles of parents and teachers.

HLTH 460 Minority Health (2-3) Prerequisite: HLTH 140 or HLTH 230 or permission of department. Health concerns of U.S. ethnic minority groups and factors placing them at elevated risk for disease and injury. Bio-psycho-social models of health promotion and illness prevention. An examination of the role of cultural and ethnic factors in health information dissemination and communication. Application of theories of health education to address cultural issues. Case studies of successful health promotion programs involving minority populations.

HLTH 471 Women's Health (3) Also offered as WMST 471. Credit will be granted for only one of the following: HLTH 471 or WMST 471. The historical, physiological, psychological, and sociological mechanisms which contribute to women's health. Topics will include glycogenolysis and reproductive health; menstruation; menstrual cycle; and the health of special populations.

HLTH 476 Death Education (3) Examination of the genesis and development of death attitudes and behavior by use of a multidisciplinary life cycle approach.

HLTH 485 Ways of Knowing About Human Stress and Tension (3) Prerequisite: HLTH 285. Not open to students who have completed HLTH 498T. A critical examination of propositions describing the nature of human condition, consequences of the propositions on human stress and tension.

HLTH 486 Stress and the Healthy Mind (3) Prerequisite: HLTH 285. For HLTH majors only. Explores diverse mental health and related behavioral skills as needed by health educators that facilitate coping with stress, are preventive in nature; and are suitable for learning by healthy individuals in the health care system.

HLTH 487 Adult Health and Developmental Program (3) Application of gerontological health and well-being theory in one-to-one interaction with older institutionalized and non-institutionalized adults. Students work as "coaches" with adults, while learning about the historical and cultural aspects of aging and old age, and their implications for assisting elderly adults.

HLTH 489 Field Laboratory Projects and Workshop (1-6) Note: the maximum total number of credits that may be earned toward any degree in kinesiology, recreation, or health education under KNES, REC, or HLTH 489 is six. A course for HLTH majors only. Prerequisite: permission of University Honors Program. Independent study by an individual student or interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HLTH 490 Principles and Techniques of Community Health (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: HLTH 381. Credit will be granted for only one of the following: CNEC 437 or HLTH 437. An application of the principles of the community health model to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

HLTH 491 Community Health Internship (12) 40 hours of laboratory per week. For community health majors only. Prerequisite: HLTH 489. Integrating theory with practice in a community health setting.

HLTH 498 Special Topics in Health (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

HONR — Honors

HONR 100 Honors Colloquium (3) Prerequisite: permission of University Honors Program. Attendance at various additional activities associated with the program and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the role of the liberal arts and the social sciences; examination of the historical and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.

HONR 149 Honors Colloquium (3) Prerequisite: permission of University Honors Program. Repeatable to 5 credits if content differs. A colloquium on a variety of topics.

HONR 168 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 169 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 200 Honors Research Colloquium (1) Prerequisite: permission of University Honors Program. Recommended for students in their second semester. All others should meet with the Director of University Honors. Credit will be granted for only one of the following: HONR 200 or HONR 300. An investigation, under individual faculty guidance, of a research question chosen by the student.

HONR 201 Beginning Research (1-3) Prerequisite: Permission of the University Honors Program. Involves a preliminary investigation, under individual faculty guidance, of a research question chosen by the student.

HONR 208 Honors Seminar (1-3) Prerequisite: Permission of the University Honors Program. Repeatable to 9 credits if content differs.

HONR 209 Honors Seminar (1-3) Prerequisite: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 218 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 219 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 228 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 229 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 238 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 239 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 248 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 249 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 258 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 259 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 268 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 269 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 278 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 279 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 288 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 289 Honors Seminar (1-3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 318 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 328 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 338 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 348 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 349 Honors Colloquium (1-3) Prerequisite: University or departmental Honors student or permission of instructor and the Director of University Honors. Repeatable to 3 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. Subjects may vary.
HONR 358 Honors Practicum (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. Formerly HONR 379. For student section leaders of HONR 100 or HONR 200.

HONR 359 Honors Workshop (1-6) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. These workshops are small seminar classes which concentrate on skill development.

HONR 368 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes teamtaught. The subjects will vary from semester to semester.

HONR 378 Advanced Honors Seminar (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes teamtaught. The subjects will vary from semester to semester.

HONR 379 Honors Independent Study (1-6) Prerequisite: permission of University Honors Program. Repeatable to 6 credits if content differs. Formerly HONR 370.

HONR 389 Guided Honors Teaching (3) Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes teamtaught. The students will vary from semester to semester.

HORT — Horticulture

HORT 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended in a faculty committee.

ITAL — Italian

ITAL 101 Elementary Italian I (4) Credit will be granted for only one of the following: ITAL 101 or ITAL 121. Introduction to basic grammar and vocabulary, written and oral work.

ITAL 102 Elementary Italian II (4) Prerequisite: ITAL 101 or ITAL 121. Introduction to basic grammar and vocabulary, written and oral work, with increased emphasis on spoken Italian.

ITAL 121 Accelerated Italian I (3) Credit will be granted for only one of the following: ITAL 101 or ITAL 121. An intensive beginning level course in spoken language skills: guided practice in reading, writing, understanding and conversation, to enable the student to move quickly to advanced courses. Restricted to students already having a good background in at least one other foreign language. With ITAL 122, may be used to satisfy language requirement.

ITAL 122 Accelerated Italian II (3) Prerequisite: ITAL 121 or permission of department. Credit will be granted for only one of the following: ITAL 203 or ITAL 122. Completion of ITAL 121. Completion of accelerated cycle. May be used to satisfy language requirement.

ITAL 203 Intermediate Italian (4) Prerequisite: ITAL 102 or permission of department. Credit will be granted for only one of the following: ITAL 203 or ITAL 122. Completion of study of basic grammar; extensive reading, discussion, and composition. Completion of the course fulfills the Arts and Humanities language requirement.

ITAL 204 Review Grammar and Composition (3) Prerequisite: ITAL 203 or ITAL 122, or permission of department. An intensive review of major aspects of contemporary grammatical usage; reading, comprehension; an introduction to guided composition.

ITAL 211 Intermediate Conversation (3) Prerequisite: ITAL 203 or permission of department. Not open to native speakers. Practice in spoken Italian with emphasis on contemporary Italian culture.

ITAL 241 Modern Italian Women Writers — in Translation (3) An analysis of the writings and the ideas of modern Italian women writers.

ITAL 251 Aspects of Contemporary Italian Culture and Language (3) Prerequisite: ITAL 204 or ITAL 211 or permission of department. Reading of selected literary texts; discussion and brief essays in Italian.

ITAL 261 Cuisine, Culture, and Society in Italy Yesterday and Today — in Translation (3) Credit will be granted for only one course in literature. Credit will be granted for only one of the following: ITAL 475, or ITAL 476. History and analysis of Italian opera libretti from Monteverdi through Mozart to Verdi and Puccini. In English.

ITAL 476 The Italian Opera Libretto in Italian (3) Credit will be granted for only one of the following: ITAL 476 or ITAL 475. History and analysis of Italian opera libretti from Monteverdi through Mozart to Verdi and Puccini. In Italian.

ITAL 497 Senior Project (3) Prerequisite: four courses at 400-level in Italian; permission of department. Individual independent study of an aspect of Italian literature, culture, or society selected according to student interest and need in consultation with a member of the Italian program.

ITAL 498 Special Topics in Italian Literature (3) Repeatable to 6 credits if content differs.

ITAL 499 Special Topics in Italian Studies (3) Repeatable to 6 credits if content differs.

IVSP — Individual Studies Program

IVSP 317 Progress Report (1) Prerequisite: admission to IVSP major. A written analysis of the program. Students register for IVSP 317 only once, the semester before the final term.

IVSP 318 Independent Learning Activities (1-6) Prerequisite: admission to IVSP major and prior arrangements with faculty advisor. For IVSP majors only. Repeatable to 9 credits if content differs. An independent study course which students select from a variety of out-of-class internships and research opportunities.

IVSP 420 Senior Paper (3) Prerequisite: admission to IVSP major. For IVSP majors only. Synthesizing final paper or a final special project.

JAPN — Japanese

JAPN 101 Elementary Japanese I (4) Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).

JAPN 102 Elementary Japanese II (4) Prerequisite: JAPN 101 or equivalent. Continued introduction to the basic spoken and written patterns of contemporary spoken Japanese.

JAPN 201 Intermediate Japanese I (4) Prerequisite: JAPN 102 or equivalent. Contemporary spoken and written Japanese.

JAPN 202 Intermediate Japanese II (6) Prerequisite: JAPN 201 or equivalent. Contemporary spoken and written Japanese.

JAPN 217 Japanese Literature in the Age of the Samurai (3) Introduction to the masterworks of medieval Japanese literature (c. 1200-1850) and to their intellectual and cultural backgrounds, focusing on prose works.

JAPN 298 Special Topics in Japanese Literature (3) Repeatable to 9 credits. Special Topics in Japanese Literature

JAPN 301 Advanced Japanese I (6) Prerequisite: JAPN 202 or equivalent. Formerly JAPN 305. Advanced conversation, oral comprehension, and selected readings.

JAPN 302 Advanced Japanese II (6) Prerequisite: JAPN 301 or equivalent. Formerly JAPN 306. Continued readings in varied modern texts and advanced conversation and oral comprehension.

JAPN 317 Buddhism and Japanese Literature in Translation (3) Religious and philosophical traditions central to Japanese imaginative life and literature from ancient to modern times.

JAPN 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

JAPN 401 Readings in Modern Japanese I (3) Prerequisite: JAPN 302 or equivalent. Development of translation techniques, vocabulary, grammar, and reading speed. Readings in history, social sciences, modern literature, and modern social and political thought.

JAPN 402 Readings in Modern Japanese II (3) Prerequisite: JAPN 401 or equivalent. Continuation of more advanced readings.

JAPN 403 Business Japanese I (3) Prerequisite: JAPN 302 or equivalent. Formerly JAPN 303. Conversation, reading, and writing applicable to Japanese business transactions, social meetings, and meetings with government organizations, with background material in English on professional business practices and social customs associated with business.
effects of the mass media in the United States. A consumer's

JAPN 499 Directed Study in Japanese (1-3)

P r e r e q u i s i t e : JAPN 411.

Japanese on theories and actual practice of discourse and

themes and literary developments in fiction from the late 19th
techniques and have an opportunity to apply them in a final
conversation analysis. Students will learn transcription
Japanese literature in translation.


JAPN 422 Introductory Japanese Linguistics (3) An investigation of Japanese sound patterns and syntax through a comparison with English.

JAPN 428 Seminar in Japanese Discourse and Conversation Analysis (3) Prerequisite: JAPN 306. Recommended: JAPN 422. Repeatable to 6 credits if content differs. Presentation and discussion of classical and current reading in English and Japanese on theories and actual practice of discourse and conversations. 3 hours of lecture and 2 hours of laboratory per week. Prerequisite: JAPN 306. Repeatable to 6 credits if content differs. An investigation of Japanese sound patterns and syntax through a comparison with English.

JAPN 499 Directed Study in Japanese (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs.

JOUR — Journalism

JOUR 100 Professional Orientation (1) Not open to students who have completed JOUR 101. Credit will be granted to one of the following: JOUR 100 or JOUR 101, Formerly JOUR 101. Survey of journalism professions, emphasizing appropriate academic and career development strategies.

JOUR 150 Introduction to Mass Communication (3) Not open to students who have completed JOUR 100 prior to Fall 1999. Credit will be granted for only one of the following: JOUR 100 or JOUR 150. Formerly JOUR 100. Survey of the functions and effects of the mass media in the United States. A considerations into newspapers, television, radio, film, sound recording, books, magazines, and new media technology.

JOUR 198 Survey Apprenticeship (1) Prerequisite: permission of department. For JOUR majors only. Repeatable to 6 credits if content differs. College-monitored experience in approved mass-communications organizations and industries.

JOUR 200 Journalism History, Roles and Structures (2) Prerequisite: JOUR 100. For JOUR majors only. Introduction to the study of journalism from the standpoint of media history and sociology.

JOUR 201 News Writing and Reporting I (3) Prerequisite: JOUR 100. 30 words per minute word processing ability; and grammar competency demonstrated by a score of 53 or higher on the TSWE. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills.

JOUR 202 News Writing I (3) Prerequisite: grade of C or better in JOUR 201. Copy editing, graphic principles and processes, new media technology.

JOUR 203 New Media I (1) One hour of lecture and one hour of laboratory per week. Prerequisite: JOUR 201. Corequisite: JOUR 202. Preparing textual, audio and video news messages in a traditional deadline atmosphere for digital delivery.

JOUR 240 Advertising in America (3) Not open to students who have completed JOUR 340. Credit will be granted for only one of the following: JOUR 240 or JOUR 340. Formerly JOUR 340. Survey of the history, regulation and organization of advertising, advertising strategies and effects.

JOUR 300 Journalism Ethics (3) Prerequisite: JOUR 201. Examination of ethical problems in news writing and reporting.

JOUR 320 News Writing and Reporting II: Print (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Principles and practices of news reporting: covering news beats and other news sources, including researching news story for accuracy, comprehensiveness and interpretation.

JOUR 321 Advanced Reporting: Public Affairs (3) Prerequisite: JOUR 320 or JOUR 360. Advanced training in writing news for publication in specialized areas, particularly city, county, and federal news. Students meet in seminar with news sources and leading news reporters and work in Washington, D.C., Ann Arbor, and Baltimore covering news in depth for publication.

JOUR 322 Advanced Reporting: Beats and Investigation (3) Prerequisite: JOUR 320 or JOUR 360. Advanced training and practice in writing, interviewing, beat reporting and investigative reporting, in-depth coverage of weekly seminars, and work with metropolitan-area newspapers covering beats and writing stories for publication.

JOUR 323 Advanced News Editing (3) Prerequisite: grade of C or better in JOUR 201. Principles and practices of editing for publication. Copy improvement, headline writing, news photos and cutlines, wire services, copy control and scheduling, page design and layout.

JOUR 324 News Commentary and Critical Writing (3) Prerequisite: JOUR 326. Journalistic interpretation and analysis; editorial and critical writing.

JOUR 325 Print News Bureau (6) 32 hours of laboratory per week. Prerequisite: JOUR 320 and permission of department. Advanced journalism training. Students report as part of College's Capital News Service program.

JOUR 326 Supervised Internship - News Editorial (3) Prerequisites: a grade of C or better in JOUR 201. JOUR 326 and permission of department. Recommended. Supervised internship experience with communication professionals in newspapers, magazines, photojournalism. Relation of academic training to professional experience.

JOUR 328 Special Topics in News Writing and Reporting (3) Prerequisite: JOUR 320 or JOUR 360. Repeatable to 6 credits if content differs. Advanced training and practice in writing and reporting news.

JOUR 341 Persuasion in Advertising (3) Prerequisites: JOUR 201 or JOUR 240. Exposure to persuasive principles employed in modern advertising; advertising writing for the mass media.

JOUR 350 Graphics (3) Prerequisite: grade of C or better in JOUR 201. Not open to students who have completed JOUR 373 or JOUR 375 or JOUR 375. Formerly JOUR 373. Introduction to visual components of new content and design; type and typography, printing processes, and illustration.

JOUR 351 Advanced Graphics (3) Prerequisite: JOUR 350. In-depth analysis of News graphics.

JOUR 352 Online Journalism (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: JOUR 202 and JOUR 320 or JOUR 360. For JOUR majors only. Editing and writing online, using basic Web-coding skills and tools to create news and feature packages for the Internet. New-media issues, including interactivity and individualization, will also be discussed.

JOUR 353 Advanced Online Journalism (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR 352. Advanced reporting and writing in an online environment.

JOUR 355 Online New Bureau (6) Prerequisite: JOUR 352 and permission of department. Advanced online journalism training. Students work as online reporters, editors and producers for an online news magazine. Students also produce copy from the print and broadcast news bureau.

JOUR 360 News Writing and Reporting II: Broadcast (3) Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Writing and reporting for broadcast media: production of news stories.

JOUR 361 Television Reporting and Production (3) Prerequisite: JOUR 360. Writing and editing for the broadcast media, interpretive and documentary news stories.

JOUR 362 Broadcast News Management (3) One hour of lecture and four hours of laboratory per week. Prerequisite: JOUR 360. Management of a broadcast station's news operations.

JOUR 363 Advanced Television Reporting and Production (3) Also offered as JOUR 663. Not open to students who have completed JOUR 486. Credit will be granted for only one of the following: JOUR 363 or JOUR 486. Formerly JOUR 486. Production of a daily television new program.

JOUR 366 Supervised Internship - Broadcast News (3) Prerequisites: a grade of C or better in JOUR 201, JOUR 202, and JOUR 360 and permission of department. Recommended. JOUR 361 for television internship. For JOUR majors only. Supervised internship experience with communication professionals in broadcast news. Relation of academic training to professional experience. Not open to students first matriculating after May 1999.

JOUR 367 Broadcast News Bureau (6) Prerequisites: JOUR 326 and permission of department. Advanced broadcast journalism training. Students report as part of the College's Capital News Service program.

JOUR 371 Feature Writing (3) Prerequisite: JOUR 320 or JOUR 360. Research and writing feature articles.

JOUR 372 Writing the Complex Story (3) Prerequisite: JOUR 371. Not open to students who have completed JOUR 481. Credit will be granted for only one of the following: JOUR 372 or JOUR 481. Formerly JOUR 481. Explanatory journalism training. Training in writing feature articles. Introduction to the complexities of such science, economics and large scale social change for books, magazines and newspaper series.

JOUR 374 Magazine Editing and Production (3) Prerequisites: JOUR 201, JOUR 360 and permission of department. Advanced magazine editing and production.

JOUR 375 Newsroom Management (3) Prerequisite: JOUR 320 or JOUR 360 and permission of department. Not open to students who have completed JOUR 461. Credit will be granted for only one of the following: JOUR 375 or JOUR 461. Formerly JOUR 461. Explanatory journalism training. Training in managing and producing magazines and newspaper series.

JOUR 376 Readings in Journalism Literature (3) Prerequisite: JOUR 320 or JOUR 360. Not open to students who have completed JOUR 440. Credit will be granted for only one of the following: JOUR 376 or JOUR 440. Formerly JOUR 440. Analysis of books by journalists highly regarded for writing style and/or the content of their reporting, with an emphasis on understanding the books in the context of national and international affairs.

JOUR 380 Science Writing for News Media (3) Prerequisite: JOUR 320 or JOUR 360 or permission of department. Writing of scientific and technical material for the general audience.

JOUR 389 News Coverage of Special Topics (1-3) Prerequisite: JOUR 320 or JOUR 360. Repeatable to 6 credits. Advanced training and practice in writing and reporting news in one specialized field of interest.

JOUR 397 Professional Seminar (3) Prerequisites: grade of C or better in JOUR 201; and permission of department. Projects and discussions relating professional work experience to study of the mass media. Limited to students who participated in an advanced summer internship after their junior year.

JOUR 398 Independent Study (1-3) Repeatable to 3 credits. Individual projects in journalism.

JOUR 400 Law of Public Communication (3) Prerequisite: JOUR 320 or JOUR 360 or JOUR 501. Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.
JOUR 410 History of Mass Communication (3) Junior standing. Development of newspapers, magazines, radio, television and motion pictures as media of mass communication. Analysis of the influences of the media on the historical development of America.

JOUR 420 Media Coverage of Government and Politics (3) Junior standing. Development of mass media coverage of government and politics; governmental and political information and persuasion techniques.


JOUR 440 Media Economics (3) Junior standing. Examination of the economics of the news media.

JOUR 450 Mass Media in Society (3) Junior standing. Ethical, moral, political, economic, and social consideration of mass communication.

JOUR 451 Advertising and Society (3) Prerequisites: JOUR 201 or JOUR 240. Junior standing. Advertising as an institution with manifest economic purposes and latent social effects; influences of advertising on people, and related issues of ethics and social responsibility.

JOUR 452 Women in the Media (3) Junior standing. Offered as WMST 452. Credit will be granted for only one of the following: JOUR 452 or WMST 452. Participation and portrayal of women in the mass media from colonial to contemporary times.

JOUR 453 News Coverage of Racial Issues (3) Junior standing. Emphasis on the media's coverage of issues relating to racial minorities in the United States, with special attention to Hispanics, African Americans, and Native Americans.

JOUR 459 Special Topics in Journalism (1-3) Repeatable to 6 credits. Independent study of special topics of current and general interest. Open to all students.


JOUR 465 Visual Communication (3) Prerequisite: JOUR 201. Junior standing. Practical and theoretical examination of visual communication processes related to photography, layout, design, video and Web information products.

JOUR 466 Theory of Broadcast Journalism (3) Prerequisite: JOUR 201. Not open to students who have completed JOUR 365. Credit will be granted for only one of the following: JOUR 365 or JOUR 466. Formerly JOUR 365. Descriptive and critical analysis of broadcast news practices; evaluation of news judgments concerning social and political aspects of the broadcast news industry.

JOUR 467 Technology and the Media (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR 320 or JOUR 325 or JOUR 352. Exploration of the role of information technology in social change.

JOUR 470 Journalism and Public Communication Research (3) Prerequisite: A university studies course. Students are encouraged to have completed the theory and technique courses in their major sequence. Not open to students who have completed JOUR 477. Credit will be granted for only one of the following: JOUR 470 or JOUR 477. Formerly JOUR 477. Journalism and public communication research methods used in measuring public opinion and media programs and materials.

JOUR 471 Public Opinion Research (3) Prerequisite: A University Studies Course. Measurement of public opinion and media habits; role of the media in the formation of public opinion.

JOUR 472 Computer-Assisted Reporting (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR 320 or JOUR 360. Not open to students who have completed JOUR 328. Credit will be granted for only one of the following: JOUR 328 or JOUR 472. Formerly JOUR 328. Computer and online data acquisition; analytical methods for writing and reporting.

JOUR 479 Special Topics in Data Gathering and Analysis (1-3) Prerequisite: JOUR 320 or JOUR 360. Repeatable to 3 credits. Special research topics for reporting and writing.

JOUR 487 Literary Journalism (3) Pre- or corequisite: JOUR 371. Practice in the use of literary techniques and especially of dramatic structure in modern newspaper series, magazine pieces and books. Analysis, researching and writing of nonfiction stories, usually with a focus on a specialized area chosen by the student.

JOUR 492 Typography and Layout For Student Publications (3) Prerequisites: JOUR 260 or permission of the instructor. Also open to editorial and advertisement layout of school newspapers, yearbooks, and magazines.

JOUR 493 Advanced Techniques For Student Publication Advisors (3) Interpretative and investigative reporting; interviewing; various survey methods; curriculum and courses for high school and community colleges; textbooks, teaching units, state of the art techniques and resource aids.

JOUR 494 Yearbook Short Course (1) Prerequisite: JOUR 201 or permission of department. Credit not applicable toward major or minor. This course deals with the thematic content, copy, design, advertising, budget, finance, law and ethics of yearbook development and production.

JOUR 498 Topics in Scholaristic Journalism (1-3) Repeatable if content differs. Seminars on specialized areas of the practice of scholarly journalism.

JWST 1 — Jewish Studies

JOUR 121 Jewish Civilization (3) Also offered as HIST 126. Credit will be granted for only one of the following: JOUR 121 or HIST 126. Jewish history, culture and society from biblical times to the present.

JOUR 141 American Jewish Experience (3) Also offered as HIST 106. Credit will be granted for only one of the following: JOUR 141 or HIST 106. Jewish migration to America from colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the Jewish communities and their participation in American social, economic and political life.

JOUR 271 The Modern Jewish Experience Through Literature (3)

JOUR 219 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JOUR 227 Reconstructing the Civilization of Ancient Mesopotamia (3) Also offered as HIST 280. Not open to students who have completed HEBR 440. Credit will be granted for only one of the following: JOUR 227 or HIST 280. Formerly HEBR 440. History and culture of Ancient Mesopotamia, as reconstructed from archeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

JOUR 230 Introduction to the Rabbinic Movement: History and Culture (3) Also offered as HIST 281. Credit will be granted for only one of the following: JOUR 230 or HIST 281. The emergence of the Rabbinic movement after the destruction of the Temple in 70 CE through the 7th Century CE. The essential texts of ancient rabbinic literature.

JOUR 234 History of the Jewish People I (3) Also offered as HIST 284. Credit will be granted for only one of the following: JOUR 234 or HIST 284. The Jewish people from their origins in Mesopotamia to the end of the Ottoman Empire. An introduction to the Jewish Diaspora.

JOUR 235 History of the Jewish People II (3) Also offered as HIST 285. Credit will be granted for only one of the following: JOUR 235 or HIST 285. Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Jewish nationalism and its subsequent encounter with modern Jewish and Islamic civilizations.

JOUR 237 History of the Jewish People II (3) Also offered as HIST 287. Credit will be granted for only one of the following: JOUR 237 or HIST 287. Political, economic, social and cultural development within Jewish history from the end of the Middle Ages to the present. Special attention to the twentieth century developments including the Nazi Holocaust and its aftermath, the Zionist movement and the creation of the State of Israel, and the rise of the contemporary American-Jewish community.

JOUR 250 Fundamental Concepts of Judaism (3) Also offered as PHIL 254. Credit will be granted for only one of the following: JOUR 250 or PHIL 254. A conceptual introduction to Judaism, analyzing its fundamental concepts from both analytical and hermeneutic approaches to the biblical text. Special attention to the development of legal or halakhic Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

JOUR 251 Authority, Faith, and Reason in Judaism (3) Also offered as PHIL 251. Credit will be granted for only one of the following: JOUR 251 or PHIL 251. A broad survey of the history of the Jewish nation from its inception to its return from exile in 70 CE. Archeological finds, and source materials from neighboring Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

JOUR 252 Early Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE Also offered as HIST 370. Special attention to the rise of sectarian and revolutionary movements.

JOUR 253 Jews and Judaism in Antiquity II: First through Seventh Centuries Also offered as HIST 371. Credit will be granted for only one of the following: JOUR 253 or HIST 371. Political, social and religious history of the Jews from the Persian Period to the Judean Revolt of 66-70 CE. Special attention to the rise of the Maccabees, the Hasmoneans, and the Hasmonean Wars.

JOUR 254 Early Christianity: Jesus to Constantine Also offered as HIST 372. Not open to students who have completed HIST 320 or HIST 332. Credit will be granted for only one of the following: JOUR 342 or HIST 332 or HIST 333. Formerly HEBR 333. Study of the political, social, and religious development of the Church in its opposition to its displacement from the Jewish Temple to its transformation in the Galilee and the Holy Land caused by the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judea under late Roman Christianity, and the rise of the Rabbinic movement.

JOUR 255 Early Christianity: Constantine to 600 Also offered as HIST 375. Credit will be granted for only one of the following: JOUR 255 or HIST 375. Political, social and religious history of early Christianity from its origin in the first century to the reign of Constantine.

JOUR 256 History of Zionism and the State of Israel Also offered as HIST 376. Credit will be granted for only one of the following: JOUR 256 or HIST 330. Social and religious history of early Zionism from its origin in the first century to the state of Israel.

JOUR 257 History of Jewish Education and Educational Movements in the Modern Era Also offered as HIST 377. Credit will be granted for only one of the following: JOUR 257 or HIST 377. Study of the political, social, and religious factors leading to the establishment of a Jewish state in 1948; Zionist thought of Herzl, Had Haam, the socialist and religious Zionists; diplomatic activities; Arab-Israeli conflict; post-1948 Israeli society.
**214 Approved Courses**

**JWST 343 Modern Jewish History I: The Road to Emancipation.** [Offered in alternate years.] Credit will be granted for only one of the following: JWST 343 or HIST 374. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

**JWST 344 Modern Jewish History II: World Jewry Since 1870** (3) Also offered as HIST 375. Credit will be granted for only one of the following: JWST 344 or HIST 375. Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.

**JWST 345 The Holocaust of European Jewry** (3) Also offered as HIST 376. Credit will be granted for only one of the following: JWST 345 or HIST 376. Roots of Nazi Jewish policy in the 1930s and during World War II: the process of destruction and the implementation of the “final solution of the Jewish problem” in Europe, and the responses made by the Jews to their concentration and annihilation.

**JWST 419 Special Topics in Jewish Studies** (3) Repeatable to 9 credits if content differs.

**JWST 451 Issues in Jewish Ethics and Law** (3) Prerequisite: three credits in philosophy or Jewish studies (excluding Hebrew language), or permission of department. Also offered as PHIL 433. Not open to students who have completed PHIL 433. Credit will be granted for only one of the following: PHIL 433 or JWST 451. Formerly HEBR 451. Philosophical considerations concerning the nature of Jewish law and its relation to morality.

**JWST 452 The Golden Age of Jewish Philosophy** (3) Prerequisite: three credits in philosophy or permission of department. Also offered as PHIL 417. Not open to students who have completed PHIL 417. Credit will be granted for only one of the following: JWST 452 or PHIL 417. Jewish philosophy from Maimonides in the 12th Century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

**JWST 453 Philosophy of Spinoza** (3) Prerequisite: six credits in philosophy or permission of department. Also offered as PHIL 424. Not open to students who have completed PHIL 424. Credit will be granted for only one of the following: JWST 453 or PHIL 424. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher Benedict Spinoza.

**JWST 466 Readings in Medieval Hebrew** (3) Prerequisite: HEBR 212 or permission of department. Not open to students who have completed HEBR 472. Credit will be granted for only one of the following: HEBR 472 or JWST 466. Formerly HEBR 472. Introductory readings in Medieval Hebrew texts. Language of instruction English; all texts in Hebrew.

**JWST 468 Readings in the Hebrew Bible** (3) Prerequisite: HEBR 212 or equivalent. Formerly HEBR 441 and HEBR 442. Not open to students who have completed HEBR 441 and HEBR 442. Readings in the Hebrew text of the Bible. Emphasis in close reading, grammar analysis, and modern interpretations of the Bible. Language of instruction English; all texts in Hebrew.

**JWST 469 Readings in Rabbinic Hebrew** (3) Prerequisite: HEBR 212 or equivalent. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: HEBR 471 or JWST 469. Introductory readings in Mishnatic and Talmudic Hebrew texts. Language of instruction English; all texts in Hebrew.

**JWST 493 Jewish Women in International Perspective** (3) Prerequisite: one course in Women’s Studies, preferably WMST 200 or WMST 250. Also offered as WMST 493. Credit will be granted for only one of the following: JWST 493 or WMST 493. Using methodological approaches to women’s studies, students will examine the “social construction of gender,” the role of women in society, short stories, films, music and the visual arts, course will interrogate what means/has meant to define oneself as a Jewish woman across lines of difference. It is largely on the secular dimensions of Jewish women’s lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspectives will be international, including Ashkenazi and Sephardi women.

**JWST 499 Independent Study in Jewish Studies** (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**220 Kinesiology**

**KNES General Education Courses** 1-3 credits per course

**KNES 100—179 Physical Education Activities**

**KNES 200 Gymnastics Skills Laboratory (2)** Progressive techniques of teaching and practice of skills in gymnastics.

**KNES 202 Badminton Skills Laboratory (1)** Progressive techniques of teaching and practice of skills in badminton.

**KNES 204 Basketball Skills Laboratory (1)** Progressive techniques of teaching and practice of skills in basketball.

**KNES 210 Field Games Skills Laboratory (1)** Progressive techniques of teaching and practice of skills in soccer, field hockey and lacrosse.

**KNES 217 Tennis Skills Laboratory (1)** Progressive techniques of teaching and practice of skills in tennis.

**KNES 218 Laboratory in Teaching (1)** Prerequisite: permission of department. Course is designed to prepare the student for the student teaching experience by assisting in a class.

**KNES 220 Track and Field Skills Laboratory (1)** Progressive techniques of teaching and practice of skills in track and field.

**KNES 221 Volleyball Skills Laboratory (1)** Progressive techniques of teaching and practice of skills in volleyball.

**KNES 223 Weight Training and Aerobic Skills Laboratory (2)** Credit will be granted for only one of the following: KNES 223, KNES 222, or KNES 224. Progressive techniques of teaching and practice of skills in weight training and aerobic activities.

**KNES 240 Exploring Cultural Diversity Through Movement (3)** Cultural diversity through an analysis of the different meanings that movement activities serve within different cultural groups. Students will examine how cultural affinities can influence why and how members of different cultural groups engage in movement activities.

**KNES 260 Science of Physical Activity and Cardiovascular Health (3)** Course details (1) the public health importance of exercise and physical activity and training. Topics include the importance of exercise and physical activity in the prevention and treatment of cardiovascular disease and diabetes; the physical and physiological principles upon which it depends; body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

**KNES 315 Methods in Physical Education (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: one of the following courses: BSCI 201; BSCI 202; and WMST 200. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

**KNES 333 Physical Activity for the Handicapped (3)** Handicapped conditions, Federal and State regulations, interpretation for planning and implementation of appropriate activity programs, evaluation strategies of assessing motor performance and the role of physical activity in educational programs for handicapped students.

**KNES 335 Swimming Pool Management (2)** Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid; and laws pertaining to swimming pool operation. Qualifies the student for a pool operator’s license in most Maryland counties.

**KNES 340 Theory of Coaching Athletics (2)** General theory and practice of coaching selected competitive sports found in secondary schools and community recreation programs.

**KNES 350 The Psychology of Sports (3)** An exploration of psychological factors, including but not limited to motivation, aggression, and emotion, as they affect sports participation and motor skill performance.

**KNES 351 Contemporary Issues in American Sport (3)** Prerequisite: KNES 287. Seminar discussion of theoretical and practical issues in contemporary sport.

**KNES 355 Physiology of Exercise (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: (BSCI 201; and BSCI 202) and permission of department. A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and performance.

**KNES 370 Motor Development (3)** Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development; and correlates of motor development.

**KNES 371 Elementary School Physical Education: A Movement Approach (3)** Prerequisites: KNES 183 and KNES 270. An analysis of movement philosophy and practice; focusing on the role of the teacher and effective developmental characteristics in relation to progression and planning of games, educational dance and educational gymnastics for elementary school age children.

**KNES 382 Advanced Care and Prevention of Athletic Injuries (3)** Prerequisites: BSCI 201 and BSCI 202. Advanced theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. This course is required for the student seeking NATA certification.

**KNES 385 Motor Control and Learning (3)** Physiological and cognitive bases for motor control and their applications to the acquisition of movement skills and understanding of movement disorders. Topics include: neurophysiology, motor control theory, sensory/perceptual processes, perception-action coupling, information processing, memory, attention, individual differences in skill acquisition, practice organization and role of feedback.

**KNES 389 Topical Investigations (1-3)** Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

**KNES 390 Practicum in Teaching Physical Education (3)** Prerequisite: KNES 371. Teaching of children in a physical education setting. Specific emphasis on curriculum development, lesson planning, progressions and analysis of teacher behavior.

**KNES 398 Honors Seminar (1) One hour of discussion/recitation per week.** Prerequisite: participation in honors program. Repeatable to 3 credits. Guided discussion of research topics of current interest.
KNES 399 Honors Thesis (3) Prerequisites: KNES 398H; and candidacy for honors in Kinesiology. Admission will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 402 Biomechanics of Sport (3) Prerequisite: KNES 300. Mechanical determinants influencing sport techniques. A quantitative, sport analytic examination of the impact of highly structured sports on young athletes and the complex social network of coaches, parents and peers.

KNES 455 Scientific Bases of Athletic Conditioning (3) Prerequisite: KNES 300. An examination of the biological, physiological, and environmental factors that underlie postural and volitional movement. Emphasis on using valid criteria for the selection of content for physical education. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.

KNES 461 Exercise and Body Composition (3) Prerequisite: KNES 360. Physiological concepts relating body composition factors to exercise and diet. Application of exercise physiology theory for enhancing athletic performance. Emphasis on exercise prescription within the context of the exercise science community.

KNES 462 Neural Basis of Human Movement (3) Prerequisites: KNES 287 and KNES 350. Examination of the nervous system within the context of a problem-solving approach to physical education. Effort is made to provide the student with the necessary skills to code the student with the interpretations and applications of these techniques.

KNES 497 Independent Studies Seminar (3) Discussions of contemporary issues vital to the discipline. Critiques of research in the student's area/areas of special interest. Completion of a major project where the student will be asked to demonstrate independence and problem solving skills in problem solving and critical writing under faculty direction.

KNES 498 Special Topics in Kinesiology (3) Prerequisite: permission of department. Repeatable when the subject matter is different. Topics of special interest in areas not covered by regularly scheduled courses.

KOREA — Korean

Korea 101 Elementary Korean I (3) Prerequisite: permission of department. Introduction to the Korean language. Primary emphasis on developing the necessary skills and cultural insights to communicate in a wide range of situations. Evaluation and grading on the basis of oral and written work. 2 hours of lecture and 5 hours of laboratory per week. Prerequisite: KNES 287. Interdependence of sport, environmental considerations and ergogenic aids.

Korea 102 Elementary Korean I (3) Prerequisite: KOREA 101 or equivalent. Continued training in elementary spoken and written Korean. Instructor permission required for new students.

Korea 211 Introductory Reading for Speakers of Korean I (3) Not open to students who have completed three or more years of Korean. Designed to improve the language skills of students already conversant in Korean; instruction entirely in Korean; intensive study of grammar and pronunciation; emphasis on speaking and reading in the language. 2 hours of lecture and 5 hours of laboratory per week. Prerequisite: KOREA 101.

Korea 212 Introductory Reading for Speakers of Korean II (3) Prerequisite: KOREA 211. Not open to students who have completed three or more years of Korean. Continuation of Korea 211; the ability to carry out investigative processes in problem solving and critical writing under faculty direction.

Korea 241 History of the Korean Language (3) The origins of the Korean language and its development from earliest recorded times to the present. The relationship of Korean to other languages. In KOREA 242 Introduction to Korean Linguistics (3) An introduction to the sound system and grammatical structure of the modern Korean language; Korean writing and orthography; Korean language and society, with an emphasis on speech styles, in English. In KOREA 499 Independent Study Korean I (3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

LARC — Landscape Architecture

LARC 140 Graphic Fundamentals (3) One hour of lecture and five hours of laboratory per week. Recommended: LARC 160. Concurrently. For LARC majors only. Formerly LARC 150. Basic techniques and the use of various media of graphic communication associated with landscape architecture. In LARC 141 Design Fundamentals (3) One hour of lecture and five hours of laboratory per week. Prerequisite: LARC 140. For LARC majors only. Formerly LARC 161. Fundamentals of basic design focusing on creative problem solving associated with landscape architecture. In LARC 160 Introduction to Landscape Architecture (3) Two hours of lecture and one hour of discussion/recitation per week. History, theory, philosophy and current practice of the profession of landscape architecture. Explores the interaction relationship between humans and their environment by examining people's perceptions of and changing attitude towards the land. The examination of how these are related to ecological and cultural influences. In LARC 220 Land Surveying (2) One hour of lecture and two hours of laboratory per week. For LARC majors only. Formerly LARC 200. Principles of land surveying such as measurements of distance, elevations and angles, instrumentation and mapping.

LARC 240 Graphic Communications (3) One hour of lecture and five hours of laboratory per week. Formerly LARC 143. For LARC majors only. Formerly LARC 240. Exploitation of graphic presentation techniques for landscape architectural planning and design documents.

LARC 241 Electronic Studio (3) One hour of lecture and five hours of laboratory per week. For LARC majors only. Formerly LARC 261. An innovative approach to the integration of computer, photographic, video, audio and other information technologies with the traditional landscape architecture studio.

LARC 263 History of Landscape Architecture (3) Formerly LARC 370. A survey of landscape architecture history from the ancient Western civilizations to the twentieth century with consideration of parallel developments in the Eastern World, European Africa and the Americas.

LARC 265 Site Analysis and Design (3) Prerequisite: permission of department. For LARC majors only. Principles and methods of site analysis; the influence of landscape character and site features (natural and built) on planning, architecture and landscape architecture.

LARC 320 Principles of Site Engineering (3) One hour of lecture and five hours of laboratory per week. Prerequisites: LARC 220 and LARC 241. For LARC majors only. Also offered as PLSC 320 (formerly HORT 320). Formerly LARC 364. The study and application of landscape construction principles as applied to grading, drainage, layout, vehicular and pedestrian circulation.

LARC 321 Landscape Structures and Materials (3) One hour of lecture and five hours of laboratory per week. Prerequisites: LARC 320 and either LARC 340 or LARC 341. For LARC majors only. Formerly LARC 465. An examination of the use, properties and detailing of materials used in landscape construction. The use and design of structures in the landscape.

LARC 340 Site Design Studio (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC 241 and (LARC 265 or ARCH 460). For LARC majors only. Formerly LARC 466. An examination of the influence of landscape character upon site design. Examination of the role of the landscape architect in the design of urban sites. Examination of land use and urban site design. Pedestrian friendly site design and the future of sustainable development will be studied.

LARC 341 Community Design Studio (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: LARC 241. For LARC majors only. Formerly LARC 361. Examines the landscape architect's role within the community and neighborhood context by utilizing community analysis, user and community factors in design, masterplan design process, site design, report writing and presentation.

LARC 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of a faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

LARC 398 Seminar (1-5)

LARC 420 Professional Practice (3) Prerequisite: LARC 321. For LARC majors only. Formerly LARC 467. An introduction to and comparative study of the professional concerns of design firms. Focus on planning, legal, ethical, marketing and management considerations of interdisciplinary practices. In LARC 440 Urban Studio Design (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC 321, and LARC 340, and LARC 341. For LARC majors only. Formerly LARC 462. The landscape architect's role within the interdisciplinary urban design process. Focuses on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.

LARC 450 Environmental Resources (3) Prerequisite: NRSC 200 or permission of department. A review of ecosystems and conservation of planning, strategies for preservation, conservation, management and development of sensitive natural and cultural landscape resources in the mid-Atlantic region.

LARC 451 Sustainable Communities (3) Explores concepts, strategies and examples of community design which address the needs of a growing population while preserving the environment and its resources.

LARC 470 Landscape Architecture Seminar (3) Prerequisites: LARC 220 and LARC 241. Focus on the development of self-directed study, seminar and lecture formats. An introduction to aspects of research methods, critical analysis and proposal writing.
LATN 471 Capstone Studio (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: LATN 440 and LATN 470. For LARC majors only. A study in an area of specialization in Landscape Architecture. The goal is the completion of a landscape architectural project that requires the student to submit a final project report and make an oral presentation, which will be open to the university.

LATN 489 Special Topics in Landscape Architecture (1-4) Prerequisite: permission of department. Repeatable to 4 credits if content differs. Credit according to time scheduled and organization of course. A lecture and/or studio course organized as an in-depth study of a selected specialization of landscape architecture not covered by existing courses.

LASC — Certificate in Latin American Studies

LASC 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN 234 and PORT 234. Credit will be granted for only one of the following: LASC 234 or SPAN 234 or PORT 234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America’s cultural mosaic, migration and urbanization. Democratization and the role of religions. revolutionaries. A continuation of LASC/PORT/SPAN 233. Three hours of lecture per week. Prerequisites: LASC 234, but completion of 234 is not a prerequisite.

LASC 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN 235 and PORT 235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of LASC/PORT/SPAN 234, but completion of 234 is a prerequisite.

LASC 403 Research and Information Sources in Latin American Studies (1) Two hours of lecture per week. Corequisite: LASC 458:. Recommended: LASC 234 and LASC 235. 86 semester hours. Senior standing. Also offered as 403. A foundational course in Latin American Information services. Students will devise a search strategy and explore information resources available to the Latin American Studies research. Three hours of discussion/recitation per week. Prerequisite: permission of department. Repeatable to 4 credits if content differs. Includes advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

LATN — Latin

LATN 101 Elementary Latin I (4) Four hours of discussion/recitation per week. A student who has two units of Latin in high school may use LATN 101 for the purposes of review, but ordinarily not for credit.

LATN 102 Elementary Latin II (4) Four hours of discussion/recitation per week. Prerequisite: LATN 101 at UMCP or permission of department.

LATN 120 Intensive Latin (4) Prerequisite: permission of department. Not open for credit to students with credit for LATN 102. Elements of Latin grammar and vocabulary; elementary reading. The first year’s study of Latin compressed into a single semester.

LATN 201 Intermediate Latin (4) Prerequisite: LATN 102 at UMCP or permission of department. Formerly LATN 203.

LATN 220 Intermediate Intensive Latin (4) Prerequisite: LATN 102, or LATN 120, or equivalent. Review of Latin grammar; reading in prose and poetry from selected authors.

LATN 301 Plautus (3) Plautine drama. Literary, linguistic and sociocultural aspects.

LATN 302 Ovid (3) Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age.

LATN 303 Petronius (3) Reading and analysis of Petronius. Satyriasis with an emphasis on the literary climate of the Augustan Age and on the emergence of a new novel of literary genre.

LATN 351 Horace and Catullus (3) Prerequisite: LATN 201 or equivalent.

LATN 402 Tacitus (3)
MATH 411 Advanced Calculus II (3) Prerequisite: MATH 410. Not open to completed MATH 350 and MATH 351. Credit will be granted for only one of the following: MATH 411 or MATH 412. Continuation of MATH 410.

MATH 412 Advanced Calculus with Applications (3) Prerequisite: MATH 410. Recommended: Basics of MATLAB. Not open to completed MATH 350 and MATH 351. Credit will be granted for only one of the following: MATH 411 or MATH 412. Applied problems from a computational perspective.


MATH 415 Introduction to Partial Differential Equations (3) Prerequisites: MATH 246, and MATH 411 or MATH 251. MATH 411 or MATH 415 may be taken concurrently. Credit will be granted for only one of the following: MATH 415 or MATH 462. First order equations, linear second order equations, existence and uniqueness theorems for initial value problems. Linear theory: fundamental matrix solutions, variation of constants formula, Floquet theory for periodic equations, asymptotic solution and stability with phase plane diagrams. Boundary value theory and series solutions.

MATH 417 Introduction to Fourier Analysis (3) Prerequisite: MATH 410. Fourier series, Fourier and Laplace transforms.

MATH 420 Mathematical Modeling (3) Prerequisite: MATH 241; and MATH 246; and STAT 400; and MATH 240 or MATH 246 and permission of department. Also offered as AMSC 420. Credit will be granted for only one of the following: MATH 420, MAPL 420, or MATH 420. The course will develop skills in mathematical modeling through practical experience. Students will work cooperatively on projects involving real-world problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

MATH 430 Euclidean and Non-Euclidean Geometries (3) Prerequisite: MATH 141. Hilbert's axioms for Euclidean geometry, the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyperbolic geometry. Existence and properties of isometries.

MATH 431 Geometry for Computer Graphics (3) Prerequisite: MATH 241 or MATH 461. Topics from projective geometry and transformation geometry, emphasizing the two-dimensional representation of three-dimensional objects and moving objects about in the plane and space. The emphasis will be on formulas and algorithms of immediate use in computer graphics.

MATH 432 Introduction to Point Set Topology (3) Prerequisite: MATH 410 or equivalent. Connectedness, compactness, Hausdorff spaces, metric spaces. Application of these concepts to various spaces, with particular attention to the Euclidean plane.

MATH 436 Differential Geometry of Curves and Surfaces I (3) Prerequisites: MATH 241; and either MATH 240 or MATH 461. Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.

MATH 437 Differential Geometry of Curves and Surfaces II (3) Prerequisite: MATH 436. Differential forms, the Euler characteristics, Gauss-Bonnet theorem, the fundamental group; global differential geometry, embeddings of surfaces, and elementary Riemann surface theory.

MATH 445 Elementary Mathematical Logic (3) Prerequisite: MATH 141. Credit will be granted for only one of the following: MATH 445 or MATH 450/CMS 450. Elementary development of propositional and first-order logic accessible to the advanced undergraduate computer science student, including the resolution method in propositional logic and Herbrand's Unifiability Theorem in first-order logic. Included are the concepts of truth, interpretation, validity, provability, soundness, completeness, incompleteness, decidability and semi-decidability.

MATH 452 Introduction to Dynamics and Chaos (3) Prerequisite: MATH 240; and MATH 246. Also offered as AMSC 452. Credit will be granted for only one of the following: AMSC 452, or MATH 454. Topics covered include dynamical systems, orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimensions, notions of chaos, and Lyapunov exponents.

MATH 456 Linear Algebra for Scientists and Engineers (3) Prerequisites: MATH 141 and one MATH/STAT course for which MATH 141 is a prerequisite. This course cannot be used toward the upper level math requirements for MATH/STAT majors. Credit will be granted for only one of the following: MATH 240, MATH 400 or MATH 461. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.

MATH 461 Partial Differential Equations for Scientists and Engineers (3) Prerequisites: MATH 241 and MATH 246. Credit will be granted for only one of the following: MATH 462 or MATH 415. Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations, introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation, boundary value problems, initial value problems, and initial-boundary value problems.

MATH 463 Complex Variables for Scientists and Engineers (3) Prerequisites: MATH 240, MATH 400 or MATH 461. Basic concepts of complex analysis. This course is similar to MATH 462, but with more extensive coverage of the topics needed in applied complex analysis: series solutions. Evaluation of the complex inversion integral by the method of steepest descents.

MATH 464 Transform Methods for Scientists and Engineers (3) Prerequisites: MATH 240, Fourier series, Fourier and Laplace transforms, elements of complex variables, Cauchy integral formula. Theory of transforms and application to evaluation of integrals. Conformal mapping.

MATH 472 Mathematical Modeling of Natural Processes (3) Prerequisites: MATH 241, PHYS 141, PHYS 142 or PHYS 171; and MATH 240; and PHYS 261, PHYS 262, PHYS 273. Also offered as AMSC 472. Credit will be granted for only one of the following: MATH 472, MAPL 472 or MATH 472. Mathematical models in fluid dynamics and elasticity, both linear and non-linear partial differential equations, variational characteristics in eigenvalue problems, numerical algorithms. Additional optional topics as time permits. Some examples are Hamiltonian systems, Maxwell's equations, non-linear programming.

MATH 473 Methods and Models in Applied Mathematics I (3) Prerequisites: MATH 241, MATH 246, and MATH 240; and PHYS 161 or PHYS 171 or permission of department. Recommended: one of: MATH 410, MATH 414, MATH 415, MATH 462, MATH 463 or PHYS 262, PHYS 273. Also offered as AMSC 473. Credit will be granted for only one of the following: MATH 472, MAPL 472 or MATH 472. Mathematical models in fluid dynamics and elasticity, both linear and non-linear partial differential equations, variational characteristics in eigenvalue problems, numerical algorithms. Additional optional topics as time permits. Some examples are Hamiltonian systems, Maxwell's equations, non-linear programming.

MATH 474 Methods and Models in Applied Mathematics II (3) Prerequisites: MATH 472 or permission of department. Also offered as AMSC 473. Credit will be granted for only one of the following: MATH 473, MAPL 473, or MATH 473. Continuation of the two semester sequence MATH 472 and MATH 473.
METO 431 Meteorology for Scientists and Engineers I (3) Prerequisite: PHYS 263; CHEM 103. A survey of the principles of meteorology and atmospheric science. Limited to two or more times until six semester hours have been reached. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431.

METO 113 Class Study of Gustar and Recorder (2) Four hours of laboratory per week. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431.

METO 210 The Impact of Music on Life (3) Two hours of laboratory per week. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431.

METO 432 Meteorology for Scientists and Engineers II (3) Prerequisite: METO 431. A continuation of the study of the atmosphere and its weather and climate systems, phenomena, and distributions of variables (winds, temperature, pressure, moisture). Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431.

METO 211 Class Study of Wind and Percussion Instruments (2) Four hours of laboratory per week. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431.

METO 310 Introduction to Ethnomusicology (3) Prerequisite: METO 210. Study of music of world cultures. A student may take this course only once toward any degree. Credit will be granted for only one of the following courses: METO 310, METO 430, METO 432, METO 433.

METO 433 Music in World Cultures II (3) Prerequisite: METO 113 or permission of department. 56 semester hours. Junior standing. Credit will be granted for only one of the following courses: METO 433, METO 434. Many vocal and instrumental music traditions from the Near East, India, China, Indonesia, West Africa, Europe, Africa and the Americas analyzed in terms of musical, social and aesthetic interrelationships.

METO 434 Selected Musical Cultures of the World (3) A study of wind and percussion instruments. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431, METO 432, METO 433.

METO 120 Selected Musical Cultures of the World (3) A study of principal concepts and methods in ethnomusicology, covering history of field, linguistics and anthropology, music in urban settings, musical communication and ethnography. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431, METO 432, METO 433.

METO 212 Musical Ethnomusicology (3) Prerequisite: METO 211. A survey of world music traditions. Credit will be granted for only one of the following courses: METO 212, METO 214. Credit will be granted for only one of the following courses: METO 212, METO 214.

METO 312 Musical Ethnomusicology (3) Prerequisite: METO 211. A survey of world music traditions. Credit will be granted for only one of the following courses: METO 212, METO 214.

METO 435 Earth and Climate Dynamics (3) Prerequisite: METO 432. Basic principles of physics, chemistry, mathematics, and computational sciences to the atmosphere.

METO 436 Air Pollution (3) Prerequisites: CHEM 103, MATH 240 or 461; PHYS 263. An overview of the science; the application of basic classical physics, chemistry, mathematics, and computational sciences to the atmosphere.

METO 437 Field Techniques and Laboratory for Evolutionary Studies in the Anthropology of Music (3) Prerequisites: METO 432; permission of department. Field work in the field of ethnomusicology, including the study of musical, linguistic and cultural traditions in the Near East, Asia, and the Americas.

METO 438 Special Problems in the Teaching of Instrumental Music (3) Prerequisites: METO 113 or MUSC 117. A study, through practice on minor instruments, of the problems encountered by the music educator in the teaching of instrumental music. Credit will be granted for only one of the following courses: METO 113, METO 117, METO 210, METO 211, METO 213, METO 214, METO 310, METO 430, METO 431, METO 432, METO 433.

METO 439 Learning to Play Instruments (3) Prerequisites: METO 432; permission of department. Credit will be granted for only one of the following courses: METO 432, METO 433.

METO 440 Instrumental Arranging (2) Prerequisites: MUSC 250 and permission of department. Arranging for school bands and orchestras from the elementary through high school levels. Credit will be granted for only one of the following courses: METO 439, METO 440.

METO 441 Instrumental Music: Methods and Materials For the Elementary (3) Prerequisite: METO 440. A comprehensive study of instructional materials and teaching techniques for beginning elementary classes—winds, strings and percussion.

METO 442 Instrumental Music: Methods, Materials and Administration (2) Practical experience in the secondary school. Credit will be granted for only one of the following courses: METO 441, METO 442.
MUSC 114 Class Study: Cello and Bass (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the instruments with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 116 Class Study: Clarinet (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the clarinet with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 117 Class Study: Flute, Oboe, Bassoon, and Saxophone (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the flutes, oboes, bassoons, and saxophones with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 120 Class Study: Cornet (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the cornet with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 121 Class Study: Horn, Trombone, Euphonium, and Tuba (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the instruments with emphasis on ensemble training. The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others.

MUSC 122 Class Study: Hom, Trombone, Euphonium, and Tuba (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the instruments with emphasis on ensemble training. The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others.

MUSC 123 Movement for Singers (1) Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance of selected repertoire. Study of stage deportment, gestures and rectical technique.


MUSC 127 Vocal Diction: Italian and Spanish (1) Augmentation of private voice study. Phonetics and diction for singers of Italian and Spanish vocal literature.

MUSC 128 Sight Reading For Pianists (2) Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

MUSC 129 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

MUSC 130 Survey of Music Literature (3) Three hours of lecture and one hour of laboratory per week. Open to all students. An introduction to the major composers and styles of the Western musical tradition. Specific analysis will be undertaken in MUSC 238 and MUSC 338. Aural and materials for teaching class voice.

MUSC 140 Music Fundamentals I (3) Limited to non-music majors. Introductory theory course. Notation, scales, intervals, triads, inversion, functional vocal skills.

MUSC 150 Theory of Music I (3) Prerequisite: departmental audition and entrance examination. For MUSC majors only. A study of basic concepts and skills in tonal melody and harmony through analysis and composition.

MUSC 151 Theory of Music II (3) Prerequisite: a grade of C or better in MUSC 150. A continuation of MUSC 150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis, and compositional skills.

MUSC 155 Fundamentals for the Classroom Teacher (3) Open to students majoring in pre-elementary education, pre-elementary education, or early childhood education. Students take MUSC 150C. Credit will be granted for only one of the following: MUSC 150 or MUSC 155. The fundamentals of music theory and practice, related to the needs of the elementary and kindergarten teacher, and organized in accordance with the six-area concept of musical learning.

MUSC 200 Intermediate Class Voice I (2) Four hours of laboratory per week. Prerequisite: MUSC 100 or equivalent vocal training. For MUSC 100, with permission of instructor. View to the development of private vocal training for solo voice and small ensembles. A special section for music education majors will include the study of methods and materials for teaching class voice.

MUSC 202 Intermediate Class Piano I (2) Four hours of laboratory per week. Prerequisite: MUSC 103 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC 103. Transposition, modulation, and sight reading; methods of teaching functional piano.

MUSC 203 Intermediate Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC 202 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC 202. Transposition, modulation, and sight reading; methods of teaching functional piano.

MUSC 205 History of Rock Music, 1950 - Present (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MUSC 104 or consent of instructor. The rock music of the present, with emphasis on pop music as pop music as social history.

MUSC 210 The Impact of Music on Life (3) Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.

MUSC 215 The Art of the Performer (3) A study of music as an intermediary of stage. Guidance and instruction in sight reading; methods of teaching functional piano.

MUSC 225 Class Composition I (2) Prerequisite: MUSC 151 and permission of department. Principles of musical composition and their application to the smaller forms. Original writing in nineteenth and twentieth century musical idioms for various media.

MUSC 230 History of Music I (3) Prerequisite: MUSC 202. Transposition, modulation, and sight reading; methods of teaching functional piano.

MUSC 277 Vocal Diction: German (1) Augmentation of private voice study. Phonetics and diction for singers of German vocal literature.

MUSC 288 Accompanying For Pianist (2) Prerequisite: MUSC 228. Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

MUSC 328 Chamber Music Performance for Pianists (2) Prerequisite: MUSC 328. A course to give the piano major experience in dealing with the problems of playing chamber music at a moderately difficult level. Class instruction will center around actual rehearsal and performance situations and will be supplemented by further experience working in chamber ensemble in applied studios.

MUSC 329 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles. Emphasis on reading, rehearsal, and performance of selected works for small ensembles. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

MUSC 330 History of Music II (3) Prerequisite: MUSC 250 or equivalent. A historical study of western music from the Baroque period to the present. Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the cornet with emphasis on ensemble training. The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others.

MUSC 331 History of Music III (3) Prerequisite: MUSC 230 and MUSC 330. A historical study of western music from the Antiquity through the Baroque, ending with a review of all periods of music history.

MUSC 339 Honors in Music (3) Prerequisite: permission of department. Corequisite: MUSC 349. Repeatable to 6 credits. The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honorees theses in areas to regular degree requirements. Two semesters required.

MUSC 340 Music Literature Survey I (3) Prerequisite: MUSC 130 or equivalent. Limited to non-music majors. Masterpieces of the symphonic and operatic repertoire including works selected from Bach, Mozart, Beethoven, Brahms, Wagner, Verdi, and Debussy.

MUSC 341 Music Literature Survey II (3) Prerequisite: MUSC 130 or equivalent. Limited to non-music majors. Specialized music repertory, including medieval, liturgical drama, Handel trio sonatas, Schubert liedern, Bartok string quartets, electronic music.

MUSC 345 Jazz Theory and Improvisation I (3) Prerequisite: MUSC 251 or permission of department. Jazz history, theoretical conventions, improvisation techniques, reading and analysis of jazz musicianship in small combo format.

MUSC 346 Jazz Theory and Improvisation II (3) Prerequisite: MUSC 345 or permission of department. Continuation of MUSC 345 including scoring and transcriptions.

MUSC 393 Honors Seminar in Music I (Corequisite: MUSC 339. Repeatable to 2 credits. Group discussion of projects undertaken in MUSC 339. Two semesters required.

MUSC 395 Opera Workshop (2) 10 hours of laboratory per week. Repeatable to 8 credits. Open to music and non-music majors (by audition). Operatic performance and performance, performance techniques and coaching, stage direction, set design, costume design, and lighting. Performance will include smaller operatic works, excerpts, or scenes.

MUSC 399 Music Internship (3) Prerequisite: permission of department. Corequisite: MUSC 399. Repeatable to 6 credits. Preprofessional field work in music.

MUSC 399 Music Internship Analysis (1) Corequisite: MUSC 399. Repeatable to 2 credits. Documentation and evaluation of field work experience.

MUSC 400 Music Pedagogy (3) Pre- or corequisite: MUSC 418 or a more advanced course in applied music. Conference course. A study of major pedagogical theories in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 405 Stage Combat for Singers (1) One hour of lecture and one hour of laboratory per week. Prerequisites: MUSC 123 and MUSC 611 or permission of Director of Opera. For MUSC majors only. Stage combat techniques for singers with emphasis on safety and aesthetics.

MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2) Pre- or corequisite: MUSC 328. A course for piano students who wish to go further than the work offered in MUSC 128, music and MUSC 328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting, and responsible artistic decision-making for the entire musical project.

MUSC 429 Opera Theater (2-3) 10 hours of laboratory per week. Open to music and non-music majors with permission of department. Repeatable to 12 credits. Advanced techniques of operatic production: preparation, rehearsal, and performance of operatic works from both the traditional and contemporary repertory.

MUSC 432 Music in World Cultures I (3) Prerequisite: MUSC 130 or permission of department. Asian musics from Japan to the Arab countries analyzed in terms of musical, social and aesthetic approaches.
MUSC 436 | Jazz: Then and Now (3) Major styles and influential artists of the past 75 years of jazz.

MUSC 439 Collegium Musicum (1) Prerequisite: permission of department or ensemble. Open to undergraduate students. A study of the performance of music by early instruments.

MUSC 443 Solo Vocal Literature (3) Prerequisite: MUSC 330, MUSC 331 or equivalent. The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music, and the orchestral song are examined.

MUSC 445 Survey of the Opera (3) Prerequisite: MUSC 330, MUSC 331 or equivalent. A study of the music, libretti and composers of the standard operas.

MUSC 448 Selected Topics in Music (1-3) Prerequisite: permission of department. A maximum of three credits may be applied to major requirements. 56 semester hours. Repeatable to 6 credits if content differs.

MUSC 450 Musical Form (3) Prerequisite: MUSC 251. A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.

MUSC 451 Analysis of Music (3) Prerequisite: MUSC 450 or permission of department. An advanced course in the analysis of tonal music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.

MUSC 452 Keyboard Harmony (2) Prerequisite: MUSC 251. Keyboard performance of musical score for vocal and instrumental ensembles and keyboard realization of basso continuo parts.

MUSC 453 Class Study of Guitar and Recorder (2) Three hours of laboratory per week. Prerequisite: permission of department. Study and development of instrumental technique, pedagogical practices, and materials relating to group performance.

MUSC 455 Theory of Jazz (3) Prerequisite: MUSC 470. An examination of the musical forms and analysis of scores exemplifying the musical forms of jazz.

MUSC 462 Music Notation on Computers (3) Prerequisite: MUSC 150 or permission of department. An in-depth, hands-on study of music notation using computers. All issues of standard notation practice are examined, including score preparation, text in vocal music, keyboard idioms and the extraction and printing of parts from larger ensemble scores.

MUSC 463 MIDI Applications (3) Prerequisite: MUSC 150 or permission of department. A hands-on course in the use of MIDI in electronic music production. Topics include generation and transformation of sound, and its modulation in the voltage-controlled studio.

MUSC 467 Piano Pedagogy I (3) A study of major pedagogical treatsies in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 468 Piano Pedagogy II (3) Prerequisite: MUSC 467. Repeatable to 6 credits. Application of the studies begun in MUSC 467 to the actual lesson situation. Evaluation of results.

MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (3) Prerequisite: MUSC 251 or equivalent. A theoretical and analytical study of twentieth century materials.

MUSC 471 Contemporary Compositional Techniques (3) Prerequisite: MUSC 470 or permission of department. Continuing course, with emphasis on the analysis of individual works written since 1945.

MUSC 480 Music in Antiquity and the Middle Ages (3) Survey of western music from Hellenic times to 1450.

MUSC 481 Music in the Renaissance (3) Survey of western music from 1450 to 1600.

MUSC 482 Music in the Baroque Era (3) Survey of western music from 1600 to 1750.

MUSC 483 Music in the Classic Era (3) Survey of western music from 1750 to 1820.

MUSC 484 Music in the Romantic Era (3) Survey of western music from 1820 to 1900.

MUSC 485 Music in the 20th Century (3) Survey of western music from 1900 to the present.

MUSC 486 Annales d'Histoire Musicale (1) Prerequisite: MUSC 251. A study of the range of musicological research and its role in the history of music.

MUSC 490 Conducting (2) Prerequisite: MUSC 251. Vocal and instrumental baton techniques.

MUSC 491 Conducting II (2) Prerequisite: MUSC 490 or equivalent. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

MUSC 492 Keyboard Music I (3) The history and literature of harpsichord and keyboard music from its beginning to the romantic period. Emphasis is placed on the keyboard music which was encountered in performance and teaching situations at the present time.

MUSC 493 Keyboard Music II (3) Prerequisite: MUSC 492. The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on the keyboard music which was encountered in performance and teaching situations at the present time.

MUSC 494 Survey of Theory (3) Prerequisite: MUSC 251. A study of the major contributions of music theorists from Greek antiquity through the twentieth century.

MUSC 499 Independent Studies (2-3) Prerequisite: permission of department. May be repeated once for credit. Independent study of music, with permission of the department chairperson. Limited to majors in performance courses 109, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements.

MUSP 119, 120 Freshman Courses.

MUSP 217, 218 Sophomore Courses.

MUSP 315, 316 Junior Courses.

MUSP 419, 420 Senior Courses. Recital required in MUSP 419.

MUSP 421, 422 Senior Courses.

NFSC — Nutrition and Food Science

NFSC 100 Elements of Nutrition (3) Formerly NUTR 100. Surveys of human nutrition requirements related to changing individual and family needs.

NFSC 112 Food: Science and Technology (3) Two hours of lecture and one hour of discussion/recitation per week. Introduction to the realm of food science, food technology and food production. Review of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

NFSC 250 Science of Food (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: NFSC 112; and CHEM 103; and CHEM 113; permission of department. For NFSC majors only. Formerly FOOD 250. Composition and structure of food with emphasis on chemical, physical, and biological properties, as well as quality characteristics of food products. Food preparation lab with emphasis on food production.

NFSC 315 Nutrition During the Life Cycle (3) Prerequisite: NFSC 100 or NFSC 250. Formerly NUTR 315. A study of how development throughout life, including prenatal development, postnatal growth, lactation, adolescence and aging, alters nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.

NFSC 335 History of Nutrition (3) Prerequisite: course in basic nutrition. Formerly NUTR 335. The development of knowledge in nutrition, including the biographies of creative nutrition researchers and the nature of the discovery process. The use of hypotheses to focus exploration and the testing and evaluation of important hypotheses in nutrition.

NFSC 350 Foodservice Operations (5) Three hours of lecture and five hours of laboratory per week. Prerequisite: NFSC 250. Pre- or corequisite: MIRC 200. Corequisite: BMGT 364. For Dietetics majors only. Formerly FSAD 350. Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

NFSC 380 Methods of Nutritional Assessment (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: NFSC 315. Corequisite: BCHM 461. For Nutrition majors only. Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biological data. Prerequisites: passage of all required courses.

NFSC 388 Honors Thesis Research (3-6) Prerequisite: permission to take the course. Directed research under the direction of an AGRN faculty member. An advanced course in the field of study. 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGRN faculty member in partial fulfillment of the requirements of the College of AGRN Honors Program. The thesis will be defended to a faculty committee.

NFSC 398 Seminar (1) Formerly FDSC 398. Presentation and discussion of current literature and research in food science.
NFSC 399 Special Problems in Food Science (1-3) Formerly FDSC 399. Credit will be granted for only one of the following: NFSC 421, Formerly FDSC 421. Formerly FDSC 423. Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in accordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC 421.

NFSC 425 International Nutrition (3) Prerequisite: course in basic nutrition. Formerly NUTR 425. Nutritional status of world populations and consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.

NFSC 430 Food Microbiology (2) Prerequisite: BSCI 233 or equivalent. Also offered as ANSC 430. Credit will be granted for only one of the following: NFSC 421, Formerly FDSC 421. Formerly FDSC 430. A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.

NFSC 431 Food Quality Control (4) Three hours of lecture and two hours of laboratory per week. Formerly FDSC 431. Definition and organization of the quality control function in the food industry; identification and control of quality characteristics; methods for acceptance sampling; in-process and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness of foods; their integration into grades and standards of quality. Statistical Process Control (SPC).

NFSC 434 Food Microbiology Laboratory (2) Four hours of laboratory per week. Pre- or corequisite: NFSC 430. Also offered as ANSC 434. Credit will be granted for only one of the following: NFSC 434 and ANSC 434. Formerly FDSC 434. A study of techniques and procedures used in the microbiological examination of foods.

NFSC 440 Advanced Human Nutrition (4) Four hours of lecture per week. Prerequisites: NFSC 100 or NFSC 200; and BCHM 462; and BSCI 440. Formerly NUTR 440. A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro- and micro-minerals, and non-nutritive components of food. Interactions of these components with food components will be examined relative to maintaining health.

NFSC 442 Horticultural Products Processing (3) Two hours of lecture and two hours of laboratory per week. Formerly FDSC 442. Commercial methods of canning, freezing, dehydrating, fermenting, and chemical preservation of fruit and vegetable crops.

NFSC 450 Food and Nutrition Analysis (3) One hour of lecture and six hours of laboratory per week. Prerequisites: NFSC 100 or NFSC 200; and BCHM 461. Formerly NUTR 450. Methods and practices of the analysis of foods and nutrients. It provides an overview of the general principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition research. Emphasis will be placed on hands-on experience and development of analytical laboratory procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.

NFSC 460 Medical Nutrition Therapy (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: NFSC 380 and NFSC 440. Formerly NUTR 460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NFSC 468 Practicum in Nutrition (1-6) Prerequisite: permission of department. Repeatable to 6 credits. Formerly NUTR 468. In-service training and practical experience in the application of the principles of normal and/or therapeutic nutrition in an approved community agency, clinical facility or nutrition research laboratory.

NFSC 470 Community Nutrition (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisites: NFSC 100 or NFSC 200; and NFSC 315. Formerly NUTR 470. Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs of specific populations. Nutrition education, food assistance, national nutrition policy and federal initiatives in nutrition will be examined. Students will be required to travel to local community nutrition sites during the semester.

NFSC 471 Meat and Meat Processing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BSCI 261 or permission of department. Formerly FDSC 471. Physical and chemical aspects of meat, the influence of the processing environment on the composition and structure of meat, meat processing, methods of testing and product development.

NFSC 482 Seafood Products Processing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BSCI 261 or permission of department. Formerly FDSC 482. The principal preservation methods for commercial seafood products with particular reference to the invertebrates. Emphasis on microbiological aspects of processing are emphasized.

NFSC 490 Special Problems in Nutrition (2-3) Prerequisites: NFSC 440 and permission of department. Formerly NUTR 490. Individually selected problems in the area of human nutrition.

NFSC 491 Issues and Problems in Dietetics (3) One hour of lecture and six hours of laboratory per week. Prerequisites: NFSC 440 and BCHM 462; and BIOM 301 or equivalent. Formerly NUTR 491. Problems in dietetics majors only. Senior seminar. Composition and characteristics of the dietetic profession; public relations; legislative aspects; and performance of a dietetic internship.

NFSC 495 Nutrition Research (3) Eight hours of laboratory and one hour of discussion/recitation per week. Prerequisites: NFSC 440 and BCHM 462; and BIOM 301 or equivalent. Formerly NUTR 495. Methods and development of necessary skills to complete a nutrition research laboratory. Three hours of laboratory per week. Formerly NUTR 495.

NRRM 388 Honors Thesis Research (1-6) Prerequisite: consent of department. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

NRRM 399 Internship (3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly AGRI 399. Students are placed in work experiences related to their stated career goals for a minimum of eight hours a week for a semester. Each student must do an in-depth study in some portion of the work experience and produce a special project and report related to this study. A student work log is also required. An evaluation from the external supervisor of the project will be required.

NRRM 450 Environmental Ecology (3) One hour of lecture and four hours of laboratory per week. Formerly BIOL 301 or permission of department. Also offered as MEES 650. Credit will be granted for only one of the following: NRRM 450 or NRRM 451. An introduction to plant and animal diversity, and ecosystems and properties of wetland systems. Laboratory emphasizes collection and analysis of field data on wetland vegetation, soil, and hydrology.

NRRM 451 Water Quality: Field and Lab Analysis Methods (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: CHEM 103 and (CHEM 104 or CHEM 113). Also offered as ENBE 451. Credit will be granted for only one of the following: NRRM 451 or CHEM 451. Technical and theoretical bases for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.

NRRM 461 Urban Wildlife Management (3) Two lectures per week. Two Saturday field trips are scheduled. Ecology and management of wildlife in urban areas. Application of basic sciences in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, reviews of private conservation organizations.

NRRM 470 Natural Resources Management (4) Senior standing. For NRRM majors only. Field work and independent projects on watersheds; intensive seminar on resource management planning and report preparation.

NRRM 479 Tropical Ecology and Resource Management (1-6) Prerequisites: BIOL 106 and (Introductory economics course) and permission of department). Repeatable to 10 credits if content differs. Formerly AGRO 105. Tropical ecosystems and issues of human use and impact. Includes lectures which lead up to an off-campus trip in a tropical environment.

NRRM 487 Conservation of Natural Resources I (3) Formerly AEEED 487. Designed primarily for teachers. Study of state's natural resources; soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Concentration on subject matter. Taken concurrently with NRRM 487 in summer semester.

NRRM 489 Field Experience (1-4) Prerequisite: permission of department. Repeatable to 6 credits. Formerly AEEED 489. Planned field experience for both major and non-major students.

NRRM 497 Conservation of Natural Resources II (3) Formerly AEEED 488. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Concentration on subject matter. Taken concurrently with NRRM 487 in summer semester.

NRRM 499 Special Problems (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

NRSC — Natural Resource Sciences

NRSC 105 Soil and Environmental Quality (3) Two hours of lecture and one hour of discussion per week. Formerly AGRO 105. Soil as an irreplaceable natural resource, the importance of soils in the ecosystem, soils as sources of pollution, and soils as the media for the storage, transformation, or inactivation of pollutants. Acid rain, indoor radon, soil erosion and sedimentation, nutrient pollution of waters, hazardous wastes, problems with soils, and the effect of soils on the food chain.
NRSC 200 Fundamentals of Soil Science (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: CHEM 103 or permission of department. Not open to students who have completed AGRO 202 or NRSC 200. Credit will be granted only for one of the following: AGRO 202 or NRSC 200. The soil ecology, chemistry, biology, and physical properties of soils are discussed. The role of soils in water cycle, productivity of ecosystems, conservation of soils, and management of soils, including the influence of soil properties on soil productivity and plant growth. Formerly AGRO 202. Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, structure, classification, and conservation of soils. Chemical, biological, and physical properties are discussed in relation to the production of plants, the functioning of hydrological and nutrient cycles, the protection of environmental quality, and engineering uses of soils.

NRSC 201 Plant Structure and Function (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: HORT 100 or AGRO 101, CHEM 103. Credit will be granted only for one of the following: HORT 201 or NRSC 201. Formerly HORT 201. A basic plant science course that studies the relationship between plant structure and function and how the environment influences changes in physiology to control plant growth and development.

NRSC 203 Plants, Genes, and Biodiversity (3) Prerequisites: BSCI 103 and BSCI 105. Credit will be granted only for one of the following: NRSC 203 or HORT 274. Formerly HORT 274. An introduction to genes for agronomic and horticultural plants that examine mechanisms of genetic improvement ranging from traditional plant breeding to tissue culture and genetic engineering. Social and political issues such as germplasm preservation and international intellectual property rights will also be discussed.

NRSC 308 Field Soil Morphology (1-2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Credit will be granted only for one of the following: AGRO 202 or NRSC 200. Credit will be granted for only one of the following: AGRO 308 or NRSC 308. Intensive field study of soils with particular emphasis on soil morphology, soil classification, and agricultural and urban soil interpretation. Field identification of soil processes and soil erosion in the Northeast U.S. Focus in spring semesters is on soils outside the Northeast region. The lab period is devoted to field trips and student efforts culminate in a mandatory extended field trip.

NRSC 388 Honors Thesis Research (3-6) Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Formerly AGRO 388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

NRSC 389 Internship (1-3) Prerequisite: permission of department. For NRSC HORT, AGRO, and LARC majors only. Formerly: AGRO 386/HORT 389. Junior standing. Repeatable to 6 credits if content differs. Credit will be given for basic intern work carried out at one or more horticultural, agronomic, landscape industries, botanical gardens, or arboreta under formally arranged internships.

NRSC 398 Seminar (1) One hour of lecture per week. Prerequisite: permission of department. Formerly: HORT 398. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

NRSC 410 Principles of Plant Pathology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: CHEM 104 or CHEM 113, NRSC 201 Formerly HORT 459 (Fall '97 and Fall '98). Not open to students who have completed PIBIO 365. Credit will be granted for only one of the following: HORT 459 (if taken in Fall '97 or Fall '98) or NRSC 410. An introduction to the causal agents, nature and management of plant diseases with particular attention paid to economically important diseases of horticultural and agronomic crops.

NRSC 411 Principles of Soil Fertility (3) Prerequisite: NRSC or equivalent. Credit will be granted for only one of the following: AGRO 411 or NRSC 411. Formerly AGRO 411. Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments.

NRSC 413 Soil and Water Conservation (3) Three hours of lecture and two hours of laboratory per week. Prerequisite: NRSC 200. Credit will be granted only for one of the following: AGRO 413 or NRSC 200. Formerly AGRO 413. Importance and causes of soil erosion and methods of soil erosion control. Effects of soil erosion and pollution on soil physical properties, and the plant root environment, irrigation and drainage as related to water use and conservation.

NRSC 414 Soil Morphology Genesis and Classification (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: NRSC 200 (formerly AGRO 202). Credit will be granted for only one of the following: AGRO 414 or NRSC 414. Formerly AGRO 414. The study of soil morphology, genesis, and taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.

NRSC 415 Soil Survey and Land Use (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: NRSC 200 (formerly AGRO 202). Credit will be granted for only one of the following: AGRO 415 or NRSC 415. Formerly AGRO 415. Evaluation of soils in the uses of land and the environmental implications of soil utilization. Interpretation of soil information and soil surveys as applied to both agricultural and non-agricultural situations. Integration of soil data into legislation, environmental standards and land use plans.

NRSC 417 Soil Hydrology and Physics (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: NRSC 200 (previously AGRO 202) and a course in physics; or department. Credit will be granted for only one of the following: AGRO 417 or NRSC 417. Formerly AGRO 417. A study of soil water interactions: the hydrologic cycle; the unique properties of water and soil; the soil components and their interactions; the field water cycle; transport processes involving water, heat and solutes; human effects on soil and groundwater as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

NRSC 421 Soil Chemistry (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: NRSC 200 (formerly AGRO 202). CHEM 104 or permission of department. Formerly AGRO 422. Relationship of soil microorganisms to the soils and their physical and chemical properties. Nitrogen fixation, mycorrhizae-plant interactions and microbially mediated cycling.

NRSC 422 Soil Microbiology (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: NRSC 200. Formerly AGRO 202, CHEM 104 or permission of department. Formerly AGRO 422. The relationship of soil microorganisms to the soils and their physical and chemical properties. Nitrogen fixation, mycorrhizae-plant interactions and microbially mediated cycling.

NRSC 423 Soil-Water Pollution (3) Prerequisites: NRSC 200 (formerly AGRO 202) and CHEM 104 or permission of department. Formerly AGRO 423. The study of pollutants such as toxic metals, pesticides, on the growth, crop and soil use and management as they relate to the environment and the ecological relevance of these responses.

NRSC 424 Environmental Plant Physiology (3) Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: NRSC 484 or AGRO 441. Formerly AGRO 441. An introduction to the basic physiological principles necessary for understanding the interactions between plants and their environment. The emphasis will be on understanding plant responses and adaptations to the environment and the ecological relevance of these responses.

NRSC 499 Special Topics in Natural Resource Sciences (1-4) Prerequisites: NRSC 200 (formerly AGRO 202), or permission of department. Credit will be granted for only one of the following: AGRO 499 or NRSC 499. Formerly AGRO 499. A lecture and/or laboratory series organized to study a selected phase of natural resource sciences, responsibility, and not covered by existing courses. Credit according to time scheduled and organization of the course.

PHIL — Philosophy

PHIL 100 Introduction to Philosophy (3) An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

PHIL 101 The Structure of Knowledge (3) Introduction to the literature, problems, and methods of philosophy through a study of problems concerning knowledge, belief, and evidence. Emphasis on Western philosophy and science.

PHIL 102 Truth and Reality (3) Literature, problems, and methods of philosophy through study of questions about the nature of what exists, truth, and problems of knowledge. Emphasis on Western philosophy and science.

PHIL 103 Self and Identity (3) An introduction to the literature, problems, and methods of philosophy through a study of problems about the self and personal identity. The primary emphasis is on Western philosophy, science and literature.

PHIL 104 Action and Responsibility (3) Literature, problems, and methods of philosophy through a study of problems of actions and responsibilities, both in ordinary and in philosophical context. Readings from other Platonic dialogues and from secondary material.

PHIL 140 Contemporary Moral Issues (3) The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

PHIL 143 Business Ethics (3) Introduction to ethical theories and their application to problems of economic justice and their application to moral problems in business.

PHIL 170 Introduction to Logic (3) Development of analytical reasoning skills through study of formal logics, reasoning systems, and fallacious inference patterns.

PHIL 173 Logic and the English Language I (3) Basic techniques for analyzing deductive arguments. The uses of these techniques to illuminate the grammar and the logic of English sentences. The capacity of the English language to express logical distinctions. Exercises in analyzing the logical structure of published writings and written arguments.

PHIL 174 Logic and the English Language II (3) Prerequisite: PHIL 173 or permission of department. Basic techniques of conceptual analysis and nondeductive reasoning examined against the capacity of the English language for exact expression. Exercises in critical analysis of published writings of varied style and content.
224 Approved Courses

PHIL 201 Issues in the Philosophy of Life (3) Philosophical issues concerning what is desirable and what is admirable in human life. The emphasis is on Western philosophy and literature.

PHIL 206 Chinese Philosophy: Social and Political Thought (3) An introductory survey of Confucian philosophy and of other Chinese social and political philosophy from ancient times to the present day. The Chou Dynasty (1122-221 BC) and the many schools of thought produced during that period. The reemergence of Confucianism and its impact on modern Chinese thought.

PHIL 209 Philosophical Issues (3) Repeatable to 6 credits if content differs. An examination of selected philosophical issues of general interest.

PHIL 233 Philosophy in Literature (3) Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance.

PHIL 234 Fundamental Concepts of Judaism (3) Also offered as JWST 250. Not open to students who have completed JWST 250. Credit will be granted for only one of the following: PHIL 234 or JWST 250. A conceptionsal introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the law, goodness, revelation, and the sacred and the profane, particularism and universalism.

PHIL 235 Authority, Faith, and Reason in Judaism (3) Also offered as JWST 251. Not open to students who have completed JWST 251 or HEBR 299B. Credit will be granted for only one of PHIL 235 or JWST 251. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

PHIL 236 Philosophy of Religion (3) A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

PHIL 243 Philosophy of Rural Life (3) An examination of traditional and modern rural values and philosophies of life with an emphasis on southern agrarian philosophies. Jefferson, Emerson, Thoreau, Populism, the Country Life Movement, the Vanderbilt Agrarians, and contemporary views.

PHIL 245 Political and Social Philosophy I (3) A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent theorists.

PHIL 250 Philosophy of Science I (3) Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

PHIL 256 Philosophy of Biology I (3) Issues in the discovery and justification of biological theories and models. Focus on cases from twentieth century biology, such as the genetic material will be selected from recent books and articles.

PHIL 270 Symbiotic Logic I (3) Formerly PHIL 371. The formal analysis of deductive reasoning involving familiarity with techniques of formal deduction in propositional logic and quantification theory, as well as some knowledge of basic concepts of formal semantics (truth tables, models).

PHIL 273 Logic for Philosophy (3) Major concepts underlying the modern formal logic development by Frege and Russell and their importance in philosophy.

PHIL 280 Introduction to Cognitive Science (3) The role of representation and reasoning in cognition considered from the differing perspectives of the cognitive-science disciplines: linguistics, artificial intelligence, neuroscience, psychology and computer science.

PHIL 308 Studies in Contemporary Philosophy (3) Prerequisite: six hours in philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view of current interest in philosophy.

PHIL 310 Ancient Philosophy (3) Prerequisite: six credits in philosophy. An examination of the origins and development of philosophy and science in ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

PHIL 320 Modern Philosophy (3) Prerequisite: six credits in philosophy. An examination of the major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

PHIL 326 Twentieth Century Analytic Philosophy (3) Prerequisite: six credits in philosophy. Recommended: PHIL 320. A study of major issues in twentieth century analytic philosophy through an examination of such philosophers as Frege, Russell, Carnap, Moore, and Wittgenstein.

PHIL 328 Studies in the History of Philosophy (3) Prerequisite: six hours of philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view in the history of philosophy.

PHIL 331 Philosophy of Art (3) Prerequisite: one course in philosophy or two courses in the creative arts. Concepts of art and the aesthetic. The nature and the meaning of the fine arts both in its historical development and in its present problematic situation.

PHIL 332 Philosophy of Beauty (3) Prerequisite: two courses in philosophy, literature, or the arts. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

PHIL 334 Philosophy of Music (3) Prerequisite: one course in philosophy or music. The nature, meaning, and purpose of music. Analysis of sound, notation, form, expression, and representation as they relate to music. Theories of music listening and of musical evaluation. Readings from philosophers, composers, critics, and psychologists.

PHIL 340 Making Decisions (3) Prerequisite: three credits in philosophy. A critical examination of decision making in personal, professional, and public life. Conflict resolution, the logic of decision, moral aspects of decision making, and standards of judgment.

PHIL 341 Introduction to Ethical Theory (3) Prerequisite: one course in Philosophy. Not open to students who have completed PHIL 142. Formerly PHIL 142. A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Plato, Kant, and Mill.

PHIL 342 Moral Problems in Medicine (3) Prerequisite: PHIL 100, PHIL 140, or permission of department. A critical examination of the moral dimensions of decision-making in health related contexts. Readings are drawn from philosophical, medical, and other sources.

PHIL 344 Persons (3) Prerequisite: one course in philosophy or permission of department. Demands of moral theories on the notion of a person regarding identity, consciousness, and freedom.

PHIL 346 Introduction to Virtue Ethics (3) Prerequisite: three credits in philosophy. The notion of virtue as a means of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 347 Issues in Jewish Ethics and Law (3) Prerequisite: three credits in philosophy or Jewish studies (excluding Hebrew language) or permission of department. Also offered as PHIL 424 or JWST 453. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher David Ben-Ami's work and the related works of Wittenberg: atomism, logic, and the picture theory in the Tractatus; roles, meaning, criteria, and the nature of moral problems in the Philosophical investigations and other posthumous writings.

PHIL 348 Topics in the History of Philosophy (3) Prerequisites: PHIL 310 and PHIL 320; or permission of department. Repeatable if content differs.

PHIL 349 Aesthetic Theory (3) Prerequisite: six credits in philosophy or permission of department. Study of the theory of art as a means of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 350 Contemporary Ethical Theory (3) Prerequisite: PHIL 341. Contemporary problems having to do with the meaning of the principal concepts of ethics and with the nature of moral reasoning.

PHIL 351 History of Ethics: Hobbes to the Present (3) Prerequisite: six credits in philosophy. An examination of the history of ethical thought from the seventeenth century to the present, including such philosophers as Hobbes, Butler, Hume, Kant, Bentham, Mill, Bradley, Sidgwick, Moore, and Stevenson.

PHIL 424 The British Empiricists (3) Prerequisite: six credits in philosophy. A critical study of selected writings on one or more of the British Empiricists.

PHIL 425 Modern Jewish Philosophy (3) Prerequisite: two courses in philosophy or permission of department. Also offered as JWST 454. Not open to students who have completed JWST 453 or PHIL 425. A study of philosophy in the nineteen century through an examination of such figures as Hegel, Marx, Kierkegaard, Nietzsche, and Mill.

PHIL 427 Wittgenstein (3) Prerequisite: two courses in philosophy or permission of department. Also offered as JWST 455 or PHIL 425. A study of philosophy in the nineteenth century through an examination of such figures as Hegel, Marx, Kierkegaard, Nietzsche, and Mill.

PHIL 431 Aesthetic Theory (3) Prerequisite: six credits in philosophy or permission of department. Study of the theory of art as a means of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 432 Contemporary Ethical Theory (3) Prerequisite: PHIL 341. Contemporary problems having to do with the meaning of the principal concepts of ethics and with the nature of moral reasoning.

PHIL 433 History of Ethics: Hobbes to the Present (3) Prerequisite: six credits in philosophy. An examination of the history of ethical thought from the seventeenth century to the present, including such philosophers as Hobbes, Butler, Hume, Kant, Bentham, Mill, Bradley, Sidgwick, Moore, and Stevenson.

PHIL 442 Normative Ethical Theory (3) Prerequisite: PHIL 431. A critical examination of selected dialogues.

PHIL 444 Contemporary Political Philosophy (3) Prerequisite: three credits in philosophy or political theory or permission of department. Sophomore standing. Major trends in contemporary political philosophy: liberal, libertarian, communitarian, socialist, feminist.
PHIL 446 Law, Morality, and War (3) Prerequisite: GVPT 300, GVPT 401, or permission of department. Also offered as GVPT 403. An exploration of fundamental moral and legal issues concerning war.

PHIL 447 Philosophy of Law (3) Prerequisite: one course in Philosophy. Examination of fundamental concepts related to law, e.g., legal systems, law and morality, justice, legal reasoning, responsibility.

PHIL 450 Scientific Thought I (3) Prerequisite: one course in philosophy or a major in science. The development of science, its philosophical implications and interpretations, and views of its methods, from the death of Newton to the early twentieth century.

PHIL 452 Philosophy of Physics (3) Prerequisite: three credits in philosophy or three credits in physics. Implications of 20th-century physics for such problems as operationalism, the structure and nature of theoretical science, the meaning of "probability," the basis of geometrical knowledge, the nature of science, its philosophical interpretations and implications, and views of its methods, from the death of Newton to the early twentieth century.

PHIL 455 Philosophy of the Social Sciences (3) Prerequisite: PHIL 250, an upper-level course in philosophy, or a major in science. A comprehensive survey of developments in the main problems of the philosophy of the social sciences, from the logical point of view to the present. The nature of theories, models, laws, and causal structures, and their implications for the study of society.

PHIL 456 Philosophy of Biology II (3) Prerequisite: PHIL 250, or PHIL 250 or a Life Science major or permission of department. A consideration of philosophical issues arising in the social sciences, with particular emphasis on issues of practical methodological concern to social scientists.

PHIL 458 Topics in the Philosophy of Science (3) Prerequisite: PHIL 250, or permission of department; when the topic for a given semester differs from the regular course, it may bear the title "Philosophy of Science: The Nature of Knowledge." The course 6 credits if content differs. A detailed examination of a particular topic or problem in philosophy of science.

PHIL 461 Theory of Meaning (3) Prerequisite: six credits in philosophy. Theories about the meaning of linguistic expressions, including such topics as sense and reference, intentionality and necessity, and possible-world semantics, through an examination of such writers as Mill, Frege, Wittgenstein, Quine, and Kripke.

PHIL 462 Theory of Knowledge (3) Prerequisite: six credits in philosophy. Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problem of induction.

PHIL 464 Metaphysics (3) Prerequisite: six credits in philosophy. A study of some central metaphysical concepts such as substance, identity, relations, causality, and time, and of the nature of metaphysical thinking.

PHIL 466 Philosophy of Mind (3) Prerequisite: six credits in philosophy. An inquiry into the nature of mind through the analysis of such concepts as consciousness, thought, sensation, emotion, and desire. Consideration of mind-body identity threat.

PHIL 468 Topics in Philosophy of Language and Logic (3) Prerequisite: one course in symbolic logic or permission of department. Repeatable to 6 credits if content differs. Problems in philosophy of language and/or philosophy of logic.

PHIL 471 Symbolic Logic II (3) Prerequisite: PHIL 271 or permission of department. Axiomatic development of the propositional calculus and the first-order functional calculus, including deducibility, conjunction, independence of axioms, consistency, and completeness.

PHIL 472 Philosophy of Mathematics (3) Prerequisite: PHIL 271 or permission of department. A study of results in foundations of mathematics and of philosophical views of the nature of mathematics and of mathematical knowledge.

PHIL 474 Induction and Probability (3) Prerequisite: one course in logic, one in mathematics, will have minimum emphasis on the logical structure underlying such inductive procedures as estimating and hypothesis-testing. Decision-theoretic rules and subjective approaches to probability are neither assumed nor endorsed, as well as classic theories of probability and induction.

PHIL 478 Topics in Philosophical Logic (3) Prerequisite: PHIL 271 or permission of department. Recommended: PHIL 470. Repeatable to 9 credits if content differs. Methods and results of modern symbolic logic are studied. Emphasis is on the study of concepts or problems of philosophical interest. Content will vary, either treating a particular logical area in detail or comparing several logical systems in terms of their philosophical implications. The development of such areas as modal logic, deontic logic, intuitionistic or relevance logic, theories of truth and paraconsistency or surveying a number of these different areas.

PHIL 480 Philosophy of Psychology: Knowledge and Reasoning (3) Prerequisite: PHIL 380 or graduate status or permission of department. Topics in the study of problems in epistemology: rationality, reliability, computational models of belief revision.

PHIL 481 Philosophy of Psychology: Representation (3) Prerequisite: PHIL 380 or graduate status or permission of department. Semantics and representations within computational framework: intentionality, explicit versus implicit representation, syntax versus semantics of thought, connexionist approaches, images, classical vs. prototype theories of concepts.

PHIL 482 Philosophy of Psychology: Subjectivity (3) Prerequisite: PHIL 380 or graduate status or permission of department. Theoretical perspectives of "point of view," the "qualities" or "feel" of things, emotions, consciousness - whether these phenomena can be captured by a computational theory of mind.

PHIL 485 Philosophy of Neuroscience (3) Prerequisite: PHIL 250, or permission of department. Philosophical and methodological issues relating to brain science, including: the place of neuroscience in cognitive science, the nature of mental representation and processing in brains, bounded-resonance models in neuroanatomy and neuropsychology.

PHIL 487 Computer Science for Cognitive Studies (3) Also offered as LING 487. Credit will be granted for only one of the following: PHIL 487 or LING 487. Coursework in computer science and philosophy approaches to cognitive studies. Intended for students majoring in neither the physical nor the biological sciences. Use of laboratory equipment and methods to study some of the basic ideas of physical science.

PHYS 117 Introduction to Physics (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: qualifying aptitude test. Corequisite: PHYS 106. Credit not applicable toward the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 106. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors, but it does not satisfy the requirements of the professional schools.

PHYS 119 Physics I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 121 or equivalent. A continuation of PHYS 121, which together with PHYS 122, generally satisfies the minimum requirement of medical and dental schools.

PHYS 122 Fundamentals of Physics II (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 121 or equivalent. A continuation of PHYS 121, which together with PHYS 122, generally satisfies the minimum requirement of medical and dental schools.

PHYS 141 Principles of Physics (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Corequisite: MATH 141. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191. First of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS 142, this generally satisfies the minimum requirement of medical and dental schools.

PHYS 142 Principles of Physics (4) Prerequisite: PHYS 141 or equivalent. Credit will be granted for only one of the following: PHYS 142, PHYS 262, PHYS 272, or former PHYS 192. A continuation of PHYS 141, including sound waves, electricity and magnetism, optics and modern physics.

PHYS 161 General Physics: Mechanics and Particle Dynamics (3) Three hours of lecture and one hour of discussion/recitation per week. Corequisite: MATH 140. Credit will be granted for only one of PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors, but it does not satisfy the requirements of the professional schools.

PHYS 170 Professional Physics Seminar (1) Corequisite: MATH 140. Recommended: high school physics. Provides a laboratory experience which parallels the major developments of current interest in physics research and discusses the activities physicists undertake in research, education, industry, government, and other areas of the economy.

PHYS 171 Introductory Physics: Mechanics and Relativity (3) 2-3 hours lecture, 1-2 hours lab per week. Corequisite: MATH 140 and permission of department. Corequisite: MATH 141. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191. First semester of a three-semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, work, energy, momentum, the special theory of relativity, waves, temperature and pressure, ideal gas law, and special relativity.
PHYS 211 General Physics For Science Teachers I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 211. A continuation of laboratory work for prospective secondary school science and mathematics teachers.

PHYS 222 General Physics for Science Teachers II (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 212 or equivalent. Laboratory equipment such as calipers, meters, oscilloscopes, and computer interfaces. Techniques of laboratory experiment and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.

PHYS 242 Mathematical Physics (4) Three hours of lecture and one hour of discussion per week. Corequisites: MATH 140 and MATH 220. First part of a two-semester sequence in physics, stressing physical significance of mathematical techniques used in the physical sciences. Students will learn to use laboratory equipment such as callipers, meters, oscilloscopes, and computer interfaces. Techniques of laboratory experiment and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.

PHYS 318 Topics in Contemporary Physics (3) Prerequisite: PHYS 273 or MATH 241. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics will be chosen from among quantum liquids, cosmology, elementary particles and geophysics.

PHYS 374 Intermediate Theoretical Methods (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: PHYS 273 and PHYS 246. Corequisites: MATH 240. Introduction to mathematical methods that are regularly used in upper level and graduate courses in physics, including important areas of complex variables, Fourier analysis, partial differential equations and eigenvalue problems. These methods will be studied in the context of relevant physics applications. A current standard symbolic manipulation program will be introduced and its appropriate use in theoretical analyses will be taught.

PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern (3) Physics Six hours of laboratory per week. Prerequisites: PHYS 273 and PHYS 276. Credit will be granted for only one of the following: PHYS 375 or former PHYS 296. Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the areas of electromagnetic waves, optics and modern physics.

PHYS 389 Undergraduate Thesis Research (1-6) Prerequisite: permission of department. For physics majors only. Repeatable to 6 credits. Independent directed research and study on a topic of the student's choice. Guidance and assistance is provided by the advisor. Final written thesis and oral defense will be expected.

PHYS 398 Independent Studies Seminar (1-16) Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

PHYS 399 Special Problems in Physics (1-3) Two hours of lecture, three hours of laboratory per week for each credit. Prerequisite: PHYS 395 and permission of department. One to three credits may be taken concurrently each semester. Selected advanced experiments. (Will be given with sufficient demand.)

PHYS 401 Quantum Physics I (4) Prerequisite: PHYS 273. Corequisites: PHYS 374 and MATH 240. Credit will be granted for only one of the following: PHYS 401 or PHYS 402 or former PHYS 421. Formerly PHYS 421. Introduces some quantum phenomena leading to wave-particle duality, Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom.

PHYS 411 or ENEE 380. Students without the electricity and magnetism prerequisite, but having a familiarity with Maxwell's equations, should check with the instructor. Orbit theory, magneto-hydrodynamics, plasma heating and stability, waves and transport processes.

PHYS 465 Modern Optics (3) Prerequisite: PHYS 410 and PHYS 411. Properties of elementary particles, production and detection of particles, relativistic kinematics, inversion principles and conservation laws.

PHYS 490 History of Modern Physics (3) Prerequisite: PHYS 441 or PHYS 411. A survey of major discoveries and year graduate students. A survey of major discoveries and developments in physics to other sciences, philosophy of science, technology and engineering. The ability to use functional programming, pattern matching, and rule sets for symbolic and numerical computations. Intended for science and engineering students who are currently taking advanced undergraduate or graduate courses in their field.

PHYS 499 Special Problems in Physics (1-6) For physics majors only. Research or special study. Credit according to work done.

PHYS 426 Mathematical Physics for Scientists and Engineers (3) Prerequisite: PHYS 273 or MATH 241. Provides a working knowledge of the powerful symbolic, numerical, and graphical tools provided by Mathematica for applications in science and engineering, and the ability to use functional programming, pattern matching, and rule sets for symbolic and numerical computations. Intended for science and engineering students who are currently taking advanced undergraduate or graduate courses in their field.

PHYS 429 Physics Capstone Research (2-4) Prerequisite: permission of instructor. Senior standing. For PHYS majors only. Repeatable to 4 credits. Independent, focused research experience for seniors seeking guidance in a future research, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general "reading course" (see PHYS 499).

PHYS 495 Physics Capstone Research (2-4) Prerequisite: permission of instructor. Senior standing. For PHYS majors only. Repeatable to 4 credits. Independent, focused research experience for seniors seeking guidance in a future research, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general "reading course" (see PHYS 499).
PLSC — Plant Sciences

PLSC 100 Introduction to Horticulture (4) Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: HORT 100 or PLSC 100. Formerly HORT 100. An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influences on plant and animal agriculture.

PLSC 101 Introductory Crop Science (4) Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: AGRO 100 and AGRO 102; or AGRO 101 and PLSC 101. Formerly AGRO 101. Major crops plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.

PLSC 161 Graphic Application for Landscape Management (3) Two hours of lecture and four hours of laboratory per week. Pre- or corequisite: PLSC 101. An introduction to graphic communication relevant to the landscape management professional.

PLSC 200 Land Surveying (2) One hour of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: HORT 200 or PLSC 200. Formerly HORT 202. Undergraduate students only.

PLSC 202 Management of Horticultural Crops (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC 100. Formerly HORT 202. Credit will be granted for only one of the following: HORT 202 or PLSC 202. Formerly HORT 202. A study of the principles and practices of the production of horticulture. Management of soils and soilless media, vegetative and reproductive growth and development, pests, harvest, post-harvest handling and marketing will be presented for model commodities.

PLSC 253 Woody Plant Material I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BSCI 226 or PLSC 100 (formerly HORT 100). Credit will be granted for only one of the following: HORT 275 or PLSC 253. Formerly HORT 253. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native disease resistant plants.

PLSC 254 Woody Plant Material II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BSCI 250 or PLSC 100 (formerly HORT 100). Credit will be granted for only one of the following: HORT 254 or PLSC 254. Formerly HORT 254. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.

PLSC 255 Landscape Design and Implementation (4) Two hours of lecture and five hours of laboratory per week. Prerequisite: PLSC 253 (formerly HORT 253) or PLSC 254 (formerly HORT 254). Not open to students who have completed LARC 140. Credit will be granted for only one of the following: HORT 255 or PLSC 255. Formerly HORT 255. Principles of landscape architecture applied to residential and commercial environments. Landscapeing: informal and formal designs and plan graphics.

PLSC 261 Computer Applications in Landscape Management (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: PLSC 161 (formerly HORT 161) and BMGT 220; ECON 203 or AREC 250 or permission of department. Recommended: LARC 160. For NRSC or HORT majors only. Credit will be granted for only one of the following: HORT 261 or PLSC 261. Formerly HORT 261. Integration of computer photographic, and other information technologies with the traditional design studio including: word processing, design with type and graphics, computer aided design, three-dimensional computer modeling, and electronic communications. Particular emphasis will be placed on programs used in computer-assisted design and in bidding, estimating and valuation in the landscape management industry.

PLSC 271 Plant Propagation (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC 105 and PLSC 100 (formerly HORT 100). Credit will be granted for only one of the following: HORT 271 or PLSC 271. Formerly HORT 271. A study of the principles and practices in the propagation of plants.

PLSC 303 International Crop Production (3) Prerequisite: BSCI 105 or equivalent. Credit will be granted for only one of the following: AGRO 303 or PLSC 303. Formerly AGRO 303. An introduction to the crop production dimension of world hunger. The problems and potentials for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production and the interrelationships between agriculture and human populations in the developing world.

PLSC 305 Introduction to Turf Management (3) Two hours of lecture and three hours of laboratory per week. Credit will be granted for only one of the following: AGRO 305 or PLSC 305. Formerly AGRO 305. Principles of turf culture. Identification and classification of turf species, principles of establishment, mowing and establishment; and the identification of turf pests.

PLSC 320 Principles of Site Engineering (3) One hour of lecture and five hours of laboratory per week. Prerequisites: LARC 140 or PLSC 255 (formerly HORT 255) and PLSC 200 (formerly HORT 200). Not open to students who have completed LARC 140. Credit will be granted for only one of the following: HORT 320, HORT 364, or PLSC 320. Formerly HORT 320. The study and application of landscape construction principles as applied to grading, drainage, layout and vehicular and pedestrian circulation.

PLSC 321 Landscape Structures and Materials (3) One hour of lecture and five hours of laboratory per week. Prerequisite: PLSC 253 or PLSC 254 (formerly HORT 253 or HORT 254). Formerly HORT 321, HORT 465, LARC 321, or PLSC 321. Formerly HORT 321. An examination of materials and methods of building self-used in landscape construction. The use and design of structures in the landscape.

PLSC 399 Special Problems in Plant Science (1-3) Prerequisite: 12 credits in PLSC and permission of instructor. For the following: AGRO 406 and PLSC 406. Formerly AGRO 399. Research projects in Plant Science including field, greenhouse, laboratory, studio and/or library research. Study is conducted under the direction of a faculty member.

PLSC 400 Nursery and Greenhouse Nutrient Management Planning (3) Prerequisite: CHEM 103 or NRSC 200 (formerly AGRO 202) or permission of department. Recommended PLSC 456 (formerly HORT 456) or PLSC 432 (formerly HORT 432). Credit will be granted for only one of the following: HORT 400 or PLSC 400. Formerly HORT 400. Course will be entirely Web-based (delivered at a distance), so internet access and a knowledge of computer operation is required. Course will lead to professional certification by the State of Maryland after MDA examinations are passed. Course will be accessed through the WebCT server on campus. Syllabus and other information can be found at http://www.courses.umd.edu/public/HORT400/.

PLSC 401 Pest Management Strategies for Turfgrass (3) Prerequisite: PLSC 305 (formerly AGRO 305). Credit will be granted for only one of the following: AGRO 401 or PLSC 401. Formerly AGRO 401. Interdisciplinary viewpoint of weed, disease, and insect management from an agronomy perspective. Plant responses to stress; identification of pest-related disorders; and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.

PLSC 402 Sports Turf Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC 305 (formerly AGRO 305) and PLSC 401 (formerly AGRO 401). Credit will be granted for only one of the following: AGRO 402 or PLSC 402. Formerly AGRO 402. A study of the anatomy, morphology and physiology of the seed and plant as related to macro and micro forms of propagation. A review of scientific principles to handling and storage of fresh produce.

PLSC 403 Crop Breeding (3) Prerequisite: BSCI 222 or permission of department. Credit will be granted for only one of the following: AGRO 403 or PLSC 403. Formerly AGRO 403. A review of genetic principles and descriptions of contemporary methods including self-pollinated, cross-pollinated, and vegetatively propagated crop plants.

PLSC 406 Forage Crops (3) Prerequisite: BSCI 105. Recommended: BSCI 106. Credit will be granted for only one of the following: AGRO 406 or PLSC 406. Formerly AGRO 406. World grasslands and their influence on early civilizations; current impact on human food supply; role of forages in soil conservation; production and management requirements of major grass and legume species for silage and pasture for livestock feed. Cultivar development, certified seed production and distribution.

PLSC 410 Cereal and Oil Crops (3) Prerequisite: BSCI 105 and PLSC 101 (formerly HORT 101). Credit will be granted for only one of the following: AGRO 410 or PLSC 410. Formerly AGRO 410. A study of principles of production for corn, small grains, rice, and oilseeds. Prerequisites: completion of all seed crops, study of seed production, processing, distribution, and federal and state seed control programs of corn, small grains and soybeans.

PLSC 410 Commercial Turf Maintenance and Production (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC 305 (formerly AGRO 305) or permission of department. Credit will be granted for only one of the following: AGRO 410 or PLSC 410. Formerly AGRO 410. Agronomic programs and practices used in hydroseeding, commercial lawn care, sod production and seed production. Current environmental, regulatory and business management issues.
### PORT 225 The Cultures of Portuguese-Speaking Africa (3) 
Cultures of Portugal’s speaking communities in Angola, Cape Verde, Sao Tome e Principe, Guinea-Bissau and Mozambique. Special attention to the development of national cultures in multicultural societies and to the role of women. Conducted in English.

### PORT 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as SPAN 228. Credit will be granted for only one of the following: PORT 228 or SPAN 228. Varied cultural topics on literature and society in contemporary Latin America.

### PORT 231 Introduction to the Literatures of the Portuguese Language (3) Prerequisite: PORT 205 or permission of department. Combines studies of Brazilian and Portuguese literatures along with the examination of literary trends, concepts and terms to texts and excerpts of longer works, chosen for their cultural, historical and stylistic interest. Taught in Portuguese.

### PORT 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN 234 and LASC 234. Credit will be granted for only one of the following: PORT 234 or SPAN 234 or LASC 234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America’s cultural mosaic, migration and urbanization. Democratization and the role of religions.

### PORT 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN 235 and LASC 235. Credit will be granted for only one of the following: PORT 235 or SPAN 235 or LASC 235. Major issues that shape Latin American and Caribbean cultures, including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and the new political realities. A continuation of PORT/LASC/SPAN 234. Credit will be granted for only one of the following: PORT 234 or SPAN 234 or LASC 234. Repeatable to 6 credits if content differs.

### PORT 240 Machado de Assis (3) Prerequisite: permission of department. Fiction of Machado de Assis covering his romantic and realistic periods.

### PSYC — Psychology

#### PSYC 100. A survey of historical and contemporary phenomena, motor coordination, emotion, drives, and the larger environment plays in influencing work behaviors and work attitudes.

#### PSYC 206 Developmental Biopsychology (3) Prerequisite: PSYC 100. Biological basis of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors. Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology.

#### PSYC 221 Social Psychology (3) Prerequisite: PSYC 100. The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, person perception, interpersonal attraction, and group behavior.

#### PSYC 235 Psychology of Adjustment (3) Prerequisite: PSYC 200; and PSYC 310; and PSYC 331 or PSYC 431. Not open to students who have completed PSYC 333. A survey of phenomena and theories of human behavior, including considerations of sensory perception, learning, memory, sex, language, and addiction.

#### PSYC 236 Adult Research and Their Practical Applications (3) Prerequisite: PSYC 100. A general survey of the field of psychology. Credit will be granted for only one of the following: PSYC 336 or WMST 336. A survey of the nature, diagnosis, etiology, and resolution, and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce). Credit will be granted for only one of the following: PSYC 336 or WMST 336. A survey of the biology, life span development, socialization, personality, mental health, and special issues of women.

#### PSYC 334 Psychology of Interpersonal Relationships (3) Prerequisite: PSYC 100. Repeatable to 6 credits if content differs. Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.

#### PSYC 341 Introduction to Psychology (3) Prerequisite: PSYC 100. An introduction to the basic models, methods of research, and findings in memory, problem-solving, and language and their applications.

#### PSYC 353 Adult Psychopathology (3) Prerequisite: PSYC 100. Credit will be granted for only one of the following: PSYC 353; PSYC 331; or PSYC 431. The nature, diagnosis, etiology, and treatment of mental disorders among adults.

#### PSYC 355 Child Psychology (3) Prerequisite: PSYC 100. Not open to students who have completed PSYC 333. Survey of research and theory of psychological development from conception through childhood. Theoretical, conceptual and behavioral changes, and the social and biological context in which individuals develop.

#### PSYC 356 Psychology of Adolescence (3) Prerequisite: PSYC 355 or permission of department. A description of adolescent development based on research relating cognitive, biological, psychological, intellectual, and social changes during the teen years and the systems dealing with those changes.

#### PSYC 357 Psychology of Adulthood and Aging (3) Prerequisite: PSYC 100. Theory, research, and implications of developmental stability and change in physiological, intellectual, and interpersonal functioning in the social context from early adulthood through the aging years.

#### PSYC 361 Survey of Industrial and Organizational Psychology (3) Prerequisite: PSYC 100. An introduction to the field of industrial organizational psychology including such topics as organizational entry, selection, training, socialization, motivation, career development, leadership, job attitudes, and productivity in the workplace (performance appraisal, absenteeism, turnover). The role that the larger environment plays in influencing work behaviors and work attitudes.

#### PSYC 401 Biological Bases of Behavior Laboratory (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: BIOL 105; and PSYC 200; and PSYC 301 or equivalent; and permission of department. Restricted to PSYC majors who have completed 85 credits. A laboratory course to introduce students to some of the basic physiological and anatomical techniques of contemporary neuroscience. Exercises look at specific neurons or groups of neurons and how they control such simple behaviors as swimming, prey capture, and species recognition. Laboratory exercises use living invertebrates and cold-blooded vertebrates.

#### PSYC 402 Physiological Psychology (3) Prerequisite: PSYC 206 or PSYC 301. Credit will be granted for only one of the following: PSYC 402. Research on the physiological basis of human behavior, including considerations of sensory phenomena, motor coordination, emotion, drives, and the neurological basis of learning.

#### PSYC 403 Animal Behavior (3) Prerequisite: PSYC 206 or PSYC 301. Social interactions, learning, sensory processes, motivation, and experimental methods, with a major emphasis on mammals.

#### PSYC 404 Introduction to Behavioral Pharmacology (3) Prerequisite: PSYC 200 or PSYC 206 or PSYC 301 or PSYC 404. Theoretical, empirical, and practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g., communication, bargaining, conflict resolution), and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce). Basic principles of pharmacology, the effects of drugs on various behaviors, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.
Approved Courses 229

PSYC 410 Experimental Psychology: Sensory Processes (4)
Three hours of lecture and four hours of laboratory per week.
Prerequisites: PSYC 200; and completion of the English, math and science supporting course sequence. A student who has completed PSYC 210 must have permission of department in order to register for PSYC 410. Restricted to PSYC majors who have completed 85 credits and permission of instructor. A systematic study of psychological processes underlying sensory and perceptual mechanisms.

PSYC 415 History of Psychology (3) Prerequisite: twelve credits in psychology including PSYC 200 or permission of department. Origins of psychology in philosophy and biology, the development of psychology as a science in the nineteenth and twentieth centuries. Consideration of current epistemological and experiential theories in relation to the evolving problems of psychology and of the role of culture, science, and technology in the development of psychological ideas.

PSYC 420 Experimental Psychology: Social Processes I (4)
Two hours of lecture and four hours of laboratory per week.
Prerequisites: PSYC 200; and PSYC 221; and completion of the departmentally required English, math, and science supporting course sequence. Restricted to PSYC majors who have completed 85 credits. A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes.

PSYC 423 Advanced Social Psychology (3) Prerequisite: PSYC 420; or permission of department. A systematic review of research and literature in major areas of current research in social psychology.

PSYC 424 Communication and Persuasion (3) Prerequisites: PSYC 200; and PSYC 221. Effect of social communication upon behavior and research concerning attitude change and social influence.

PSYC 432 Introduction to Counseling Psychology (3) Prerequisite: nine hours in psychology including PSYC 200. Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.

PSYC 433 Basic Helping Skills: Research and Practice (4)
Two hours of lecture and two hours of laboratory per week.
Prerequisites: PSYC 200; and PSYC 235 or PSYC 353 or PSYC 342 or PSYC 434 or PSYC 435 or PSYC 436.) For PSYC majors only. Theories and research regarding effective helping skills. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. Students should be willing to talk about personal issues in class.

PSYC 434 Severe Mental Disorders: Etiology and Treatment (3) Prerequisites: PSYC 200, and PSYC 301, and PSYC 353, or permission of department. Examines multiple perspectives on severe mental illnesses such as schizophrenia and the major affective disorders. Integrates the biological findings with the human experience, their cultural and political aspects, and their psychological, pharmacological, and social service treatments. Opportunity is provided for interaction with persons suffering from these illnesses.

PSYC 435 Personality Theories (3) Prerequisite: PSYC 100; and PSYC 200. Major theoretical frameworks and research methods and findings relevant to those theories.

PSYC 436 Introduction to Clinical Psychology (3) Prerequisite: PSYC 200 or equivalent. Critical analysis of clinical psychology, with particular emphasis on current trends in research and methodology.

PSYC 440 Experimental Psychology: Cognitive Processes (4)
Three hours of lecture and two hours of laboratory per week.
Prerequisites: PSYC 100; and PSYC 200 or a statistics course from an approved list; and completion of the departmentally required English, math and science supporting course sequence. Restricted to PSYC majors who have completed 85 credits. A survey of the current content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language.

PSYC 442 Psychology of Language (3) Prerequisite: PSYC 200; and completion of the departmentally required English, math and science supporting course sequence. A student who has completed PSYC 440 must have permission of department. Introductory survey of topics in psycholinguistic research, theory and methodology. Major emphasis on the contributions of psychology to the psychological study of language behavior and cognition. Linguistic theory, biological bases of language, and speech, grammars, phonetics and phonology with perspectives from psychological studies of syntax and semantics, language and cognitive development, language comprehension and thought.

PSYC 443 Thinking and Problem Solving (3) Prerequisites: PSYC 200 and PSYC 341 or PSYC 440; or permission of department. Historical development, current theory and data, and research methods in problem solving. Formal examination of various classes of thinking and human problem-solving behavior. The uses of strategies to improve students’ own thinking processes and problem-solving behavior.

PSYC 450 Field Research in Organizational Psychology (4)
Two hours of lecture and two hours of laboratory per week.
Prerequisites: PSYC 100, PSYC 200 and completion of required English, math, science sequence. Recommended: PSYC 400 or equivalent. Students will have completed 30 credits. For PSYC majors only. Methods of field research applicable to organizational settings are examined, including field observation, and quasi-experiments, observation, interviewing, surveys, content analysis, and various forms of qualitative inquiry.

PSYC 451 Principles of Psychological Testing (3) Prerequisite: PSYC 200 or equivalent. Basic concepts and practical applications of formal assessment and test development. Also discussed are social, legal, cultural, and ethical considerations in testing and commonly used tests.

PSYC 452 Psychology of Individual Differences (3) Prerequisite: PSYC 200. Problems, theories, and research related to psychological differences among individuals and groups.

PSYC 455 Life-Span Cognitive Development (3) Prerequisites: PSYC 200 and PSYC 355 or PSYC 341 or PSYC 440) Theory and research in cross-cultural developmental perspective including memory, reasoning, attention, spatial cognition, and conceptual organization, and discussions of implications of current research for a variety of educational interventions.

PSYC 456 Research Methods in Developmental Psychology (3) Prerequisites: PSYC 200 and PSYC 355 or PSYC 356 or PSYC 357). A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation, and laboratory experimentation.

PSYC 457 Cultural Context of Psychological Development (3) Prerequisite: PSYC 355, or PSYC 356, or PSYC 357.) or permission of department. Exploration of whether important differences or similarities exist among and within cultures in the way people develop psychological competencies in the period from birth through adolescence.

PSYC 458 Applied Developmental Psychology (3) Prerequisites: PSYC 200 or PSYC 355 or PSYC 356 or PSYC 357). Repeatable to 6 credits if content differs. An examination of a topic in developmental psychology which has been examined in a laboratory and is central to developmental theories. Extension of these analyses to practical and social issues in the daily life of the developing individual. Topics will vary from term to term.

PSYC 460 Psychological Foundations of Personnel Selection and Training (3) Prerequisite: PSYC 200 or equivalent. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organization analysis; organizational choice; development of predictors; evaluation of instructional and training systems; theories of job performance and application to training.

PSYC 463 Psychology of Motivation and Attitudes in Organizational Settings (3) Prerequisites: PSYC 200 and PSYC 361. Theories, research and practice regarding the assessment, understanding, and prediction of motivation at work. Theories, assessment and consequences of various work-related attitudes. An integration of theory, research and practice.

PSYC 464 Psychology of Leaders in Work Organizations (3) Prerequisites: PSYC 200 and PSYC 356 (or PSYC 357) or permission of department. Theories of interpersonal, intra- and inter-group relations, with emphasis on issues of conflict, competition, cooperation and the role of leader in organizations. Organizational diagnosis and intervention.

PSYC 465 Psychology of Organizational Processes (3) Prerequisites: PSYC 200 and PSYC 356 or PSYC 357 or permission of department. Theories of interpersonal, intra- and inter-group relations, with emphasis on the role of power in organizations. Organizational diagnosis and intervention.

PSYC 466 Environmental and Ecological Psychology (3) Prerequisite: PSYC 200. An examination of measurement, description, and impact of the physical and social environment on the psychological and emotional development and well-being of the individual. The student will conduct a research project focusing on an aspect of the physical environment. The major topics in this course are: Place attachment, proximity and the built environment; health and illness; economic and social development; environmental policy and social norms for sustainability.

PSYC 467 Psychology and Social Networks (3) Prerequisites: PSYC 200 or permission of department. Examination of the social network perspective and its implications for individual psychological and social processes. Development of these analyses to practical and social issues in the daily life of the developing individual. Topics will vary from term to term.

PSYC 468 Advanced Psychology I (Honors) (3) Prerequisites: PSYC 200 and permission of department. Seminar covering topics in sensation, perception, learning, and motivation.

PSYC 469 Advanced Psychology II (Honors) (3) Prerequisite: PSYC 468 or permission of department. Seminar covering topics in measurement, social processes, developmental processes and other subject matter of current interest.

PSYC 490 Honors Thesis Research (3) Prerequisite: PSYC 469 and permission of thesis advisor.

RUS - Russian

RUSS 101 Elementary Russian I (6) Two hours of lecture and four hours of laboratory per week. Not open to native speakers of Russian. Elements of grammar, pronunciation, conversation and reading; exercises in translation.

RUSS 102 Elementary Russian II (6) Two hours of lecture and six hours of laboratory per week. Prerequisite: RUSS 101. Not open to native speakers of Russian. Continuation of RUSS 101. Elements of grammar, pronunciation, and conversation; exercises in translation.

RUSS 201 Intermediate Russian I (5) Two hours of lecture and four hours of laboratory per week. Not open to native speakers of Russian. Continuation of RUSS 101. Elements of grammar, pronunciation, conversation and reading; exercises in translation. Note: this new RUSS 201 has no relation to the old SLAV 201, which is to be eliminated.

RUSS 202 Intermediate Russian II (5) Two hours of lecture and four hours of laboratory per week. Not open to native speakers of Russian. Continuation of RUSS 201. Review and expansion of grammar knowledge, conversation and reading skills; exercises in translation.

RUSS 210 Structural Description of Russian (3) Prerequisite: RUSS 202. A course designed to order and supplement students’ knowledge of the sound system and the inflectional system of the verb. A prerequisite component on morphology. The course also focuses on the web and methods of developing vocabulary.

RUSS 211 Applied Russian Phonetics (3) Prerequisite: RUSS 210. Not open to native speakers of Russian. Pronunciation; the sounds and intonational patterns of Russian in contrast with English.

RUSS 221 Masterworks of Russian Literature I (3) Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century and concluding with works of Dostoevsky and Tolstoy in the later part of that century.

RUSS 222 Masterworks of Russian Literature II (3) Introduction to the classics of Russian literature in translation, beginning with the end of the nineteenth century and concluding with conmarov works.
RUSS 202. A historical survey of Russian civilization and social concepts in the development of Russian art, dance, and philosophies.

RUSS 301 Advanced Russian I (3) Prerequisite: RUSS 202 or equivalent. Advanced training in written Russian communicative structures.

RUSS 302 Advanced Russian II (3) Prerequisite: RUSS 301. Advanced training in written Russian communicative structures.

RUSS 303 Russian Conversation: Functional Skills (3) Prerequisite: RUSS 202 or equivalent. Designed for students who do not anticipate having the opportunity to study in the Soviet Union. Skills for daily life (both function and etiquette) and argumentation (heteric).

RUSS 307 Commercial Russian I (3) Prerequisite: RUSS 202 or equivalent. Designed to give introductory knowledge of correct commercial Russian. Includes letters, business forms, contracts, and agreements.

RUSS 321 Survey of Russian Literature I (3) Prerequisite: RUSS 202 or equivalent. The first half of a survey of Russian literature.

RUSS 322 Survey of Russian Literature II (3) Prerequisite: RUSS 321 or equivalent. The second half of a survey of Russian literature.

RUSS 327 Old Russian Literature in Translation (3) Recommended: RUSS 221. Old Russian literature of the 11th-17th centuries for the general student. Selected texts will be read in translation, with analysis in terms of genre and historical setting.

RUSS 328 19th Century Russian Literature (3) Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose emphasizing architecture, painting, sculpture, music, ballet, and the theater to the beginning of the 19th century pointing out the interrelationship of all with literary movements. Taught in Russian.

RUSS 381 Russian Civilization (in Russian) I (3) Prerequisite: RUSS 202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the interrelationships of all with literary movements. Taught in Russian.

RUSS 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

RUSS 398 Selected Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 401 Advanced Russian Composition (3) Prerequisite: RUSS 302.

RUSS 402 Practicum in Written Russian (3) Prerequisite: RUSS 401 or equivalent. Designed to improve comprehension of functional varieties of written Russian and develop facility in present in written form concise syntheses of source texts.

RUSS 403 Russian Conversation: Advanced Skills (3) Prerequisite: RUSS 303 or equivalent. Advanced spoken production of highlevel, abstract language.

RUSS 404 Practicum in Spoken Russian (3) Prerequisite: RUSS 403 or equivalent. To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material.

RUSS 405 Russian-English Translation I (3) Prerequisite: RUSS 307. Translation of the more difficult and complex Russian business documents and Russian business ministries.

RUSS 409 Selected Topics in Russian Language Study (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian language study.

RUSS 410 Applied Linguistics (3) The nature of applied linguistics and its contributions to the effective teaching of foreign languages. Comparative study of English and Russian, with attention on theories of translation and the principles of translation of a particular genre, -- typically diplomatic, business, or literary.

RUSS 406 Russian-English Translation II (3) Prerequisite: RUSS 405. Continuation of RUSS 405.


RUSS 431 Russian Literature of the 19th Century (3) Prerequisite: RUSS 430. Continuation of RUSS 411. The syntax of the complete sentence, semantics.

RUSS 432 Russian Literature of the 19th Century II (3) Prerequisite: RUSS 431. Russian literature of the late 19th century to the present.

RUSS 433 Russian Literature of the 20th Century (3) Prerequisite: RUSS 432. Russian literature of the 20th century.

RUSS 434 Soviet Russian Literature (3) Prerequisite: RUSS 433. The social and political background of Soviet Russian literature.

RUSS 439 Selected Topics in Russian Literature (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian literature.

RUSS 473 Recent History of the Russian Language (3) Prerequisite: RUSS 210 or equivalent. Linguistic interpretation of Russian texts from the late 18th century to the present.

RUSS 499 Independent Study in Russian (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

SLAV — Slavic

SLAV 469 Selected Topics in Slavic Studies (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic studies.

SLAV 475 Old Church Slavonic (3) Introduction to the language of the oldest recorded Slavic documents. Historical presentation of phonology, morphology, and syntax; reading of texts.

SLAV 479 Selected Topics in Slavic Linguistics (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic linguistics.

SLAV 499 Directed Study (1-3) Prerequisite: permission of department. For advanced students. Repeatable to 6 credits if content differs.

SOCY — Sociology

SOCY 100 Introduction to Sociology (3) The fundamental concepts and principles of sociology. Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change.

SOCY 105 Introduction to Contemporary Social Problems (3) An examination of contemporary social problems through sociological perspectives; ways in which social problems are part of the organization of society; a detailed study of selected social problems including social conflict and social inequality.

SOCY 109 Freshman Seminar (3) This freshman seminar will focus on the longstanding debate over world population growth. Students will study the demographic sources of rapid population growth as well as the consequences of growth for health, food and water resources, health and nutrition, economic development and other related topics.

SOCY 201 Introductory Statistics for Sociology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY 101 and MATH 111 or equivalent. Not open to students who have completed BMGT 231, ENEE 400, or STAT 240. Credit will be granted for only one of the following: AREC 484, BIOM 301, BMGT 230, CNEC 400, ECON 321, ENS 405, GESE 305, GVPR 422, PSYC 201, STAT 356, or TEXT 400. Elementary descriptive and inferential statistics. Construction and interpretation of bivariate comparative tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; analysis of variance; the normal, binomial and chi-square distributions; point and interval estimates.

SOCY 202 Introduction to Research Methods in Sociology (4) Prerequisite: SOCY 201. The underlying logic, major strategies, specific techniques and skills of sociological research. Research design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis, interpretation and report writing.


SOCY 227 Introduction to the Study of Deviance (3) Credit will be granted for only one of the following: SOCY 243 or SOCY 343. Formerly SOCY 327. An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviation, and the use of drugs.

SOCY 230 Sociological Social Psychology (3) Theoretical perspectives and their applications, Socialization through the life course, the self-concept, attitudes, emotion, attribution, interpersonal relations, group processes, deviance, and social change.

SOCY 241 Inequality in American Society (3) The dynamics of inequality in social production, politics, culture, and legal institutions, stratification, and social change.

SOCY 305 Social and Criminal Society (3) Prerequisite: 3 credits of sociology. Junior or senior standing required. This course permits sociology honor students to undertake a supervised, independent study of the social and criminal society. This course is designed for students who have completed BMGT 231, ENEE 324, or STAT 400. Credit will be granted for only one of the following: AREC 484, BIOM 301, BMGT 230, CNEC 400, ECON 321, ENS 405, GESE 305, GVPR 422, PSYC 201, STAT 356, or TEXT 400. Elementary descriptive and inferential statistics. Construction and interpretation of bivariate comparative tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; analysis of variance; the normal, binomial and chi-square distributions; point and interval estimates.

SOCY 325 The Sociology of Gender (3) Prerequisite: 3 credits of sociology. Junior or senior standing required. Formerly SOCY 325. An examination of the influence of gender roles and gender inequality on society, political, cultural, and historical perspectives on gender, gender socialization, and gender role change. Emphasis on contemporary American society.

SOCY 333 Technology and Society (3) Prerequisite: 3 credits of sociology. An examination of the relationship between technology, society, politics, economy, science, and culture. An analysis of the role of technology in shaping of new forms of political and economic organizations.

SOCY 380 Honors Independent Reading in Sociology (3) Prerequisite: permission of department. Formerly SOCY 378. This course permits sociology honor students to undertake a supervised independent study or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.
SOCY 381 Honors Independent Research in Sociology (3) Prerequisite: SOCY 380. Formerly SOCY 381. This course permits sociology students to define a particular problem in sociology or a subfield thereon and to develop a research plan for use in the department. A final project will be done under the supervision of a member of the sociology faculty.

SOCY 383 Honors Thesis Research (3) Prerequisite: SOCY 381. Formerly SOCY 383. Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.

SOCY 389 Special Topics in Sociology (1-3) Prerequisite: 6 credits of sociology or permission of department. Repeatable to 6 credits if content differs. Topics of special interest to both sociology majors and non-majors.

SOCY 399 Independent Study in Sociology (1-6) Prerequisite: 62 credits of sociology or permission of department. Repeatable to 6 credits if content differs. Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student in one time field experience in SOCY 386 and SOCY 399 combined.

SOCY 401 Intermediate Statistics for Sociologists (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY 201 or equivalent or permission of department. Not open to students who have completed ENEE 324, BMGT 231, or STAT 400. Issues in the use of significance tests in sociology, one and two-tailed tests, and non-parametric techniques. The use of statistical software.

SOCY 402 Intermediate Procedures for Data Collection (3) Prerequisite: SOCY 202 or equivalent or permission of department.Prerequisites: SOCY 101. A survey of the major research methods used by sociologists, including survey research, experimentation, observation, archival research, and in-depth interviewing. The selection of an appropriate research method, with analysis of the strengths and weaknesses of various methods, practical issues, data collection and preparation, and analytical techniques.

SOCY 403 Intermediate Sociological Theory (3) Prerequisite: SOCY 203 or equivalent or permission of department. Major sociological theories, including functionalism, conflict, symbolic interactionism, and the impact of new theoretical perspectives on sociological research.

SOCY 404 Methods of Quantitative Analysis (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY 202 or equivalent or permission of department. Analysis of sociological data using the statistical packages such as SPSS, BMDP or SAS. Emphasis is on the use of multivariate statistical techniques.

SOCY 410 Social Demography (3) Prerequisite: 6 credits of sociology or permission of department. Types of demographic analysis. Demographic characteristics; immigration; fertility; mortality; population theories; world population growth; population policy.

SOCY 411 Demographic Techniques (3) Prerequisite: SOCY 201 or equivalent or permission of department. Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.

SOCY 412 Family Demography (3) Prerequisite: SOCY 410. Formerly SOCY 312. Population dynamics, fertility issues, such as teenage pregnancy, the timing of parenthood, and family size; as they relate to family behavior, such as marital patterns, child care use, and work and the family. Policy issues that relate to demographic changes in the family.

SOCY 421 Women and Men in the World System (3) Prerequisite: Six credits of Sociology or permission of department. Critical overview of major movements to develop political movements internationally. The development of income, dependency, and human development within comparative sociology. Impact on empiricist research and the design and implementation of strategies of development. The sociological analysis of comparative social development including: democratization, trends in world income inequalities, structural adjustment programs, and changing patterns of labor force participation by women and men.

SOCY 422 Social Change in Latin America (3) Prerequisite: 6 credits of Sociology or permission of department. Comparative study of social change in contemporary Latin America. Critical review of major theories and their use in empirical research, and implementation of social policies of alternative perspectives.

SOCY 424 Sociology of Race Relations (3) Prerequisite: 6 credits in sociology or permission of department. Analysis of race-related issues, with a primary focus on American society. The historical development, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

SOCY 425 Gender Roles and Social Institutions (3) Prerequisites: 6 credits of sociology or permission of department. Relationship between gender roles and the structure of one or more social institutions (e.g., the economic, political, religious, and educational). The incorporation of gender roles into social institutions; perpetration or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

SOCY 426 Sociology of Religion (3) Prerequisite: 6 credits of sociology or permission of department. Varieties and sources of religious experience. Religious institutions and the role of religion in social life.

SOCY 427 Deviant Behavior (3) Prerequisite: 6 credits of sociology or permission of department. Major sociological theories of the genesis and distribution of deviant behavior, and their implications for a general theory of deviant behavior. Definitions of deviance, labeling theory, secondary deviance.

SOCY 428 Research in Inequality (3) Prerequisite: SOCY 202, 203 and one course in Stratification and Inequality. Repeatable to 6 credits if content differs. This is the special topics research course for Stratification and Inequality.

SOCY 430 Social Structure and Identity (3) Prerequisite: 6 credits of sociology or permission of department. Theoretical issues in social psychology, focusing on social construction of identity. Identity formation and transformation in social process. Structural and cultural dimensions of social identity.

SOCY 431 Principles of Organizations (3) Prerequisite: 6 credits of sociology or permission of department. Structure and processual characteristics of organizations that make them effective for different purposes and in different environments. Efficiency and effectiveness in occupational behavior, organizational networks, and leadership. Types of organizations studied include formal bureaucracies, professional organizations, and voluntary associations.

SOCY 432 Social Movements (3) Prerequisite: 6 credits of sociology or permission of department. Forms, mechanism, and techniques of group influence on human behavior; processes of social movement and social change; the role that social movements play in social change; the relations between social movements and social institutions; the political role of social movements; social movements in contemporary society.

SOCY 433 Social Control (3) Prerequisite: 6 credits of sociology or permission of department. Forms, mechanism, and techniques of group influence on human behavior; processes of social movement and social change; the role that social movements play in social change; the relations between social movements and social institutions; the political role of social movements; social movements in contemporary society.

SOCY 434 Social Stratification and Inequality (3) Prerequisite: 6 credits of sociology or permission of department. The nature of the self-concept and the social forces that mold it. Major sociological perspectives and theories of the self-concept. Mechanisms of social stratification and inequality. The political role of social movements; social movements in contemporary society.

SOCY 440 Sociology of the Self-Concept (3) Prerequisite: 6 credits of sociology or permission of department. The nature of the self-concept and the social forces that mold it. Major sociological perspectives and theories of the self-concept. Mechanisms of social stratification and inequality. The political role of social movements; social movements in contemporary society.

SOCY 442 The Family and Social Class (3) Prerequisite: 6 credits of sociology or permission of department. Development of the family from pre-industrial to contemporary period. Emphasis on marriage and family institutions and their social roles, including structural and cultural changes and their social consequences. Discussion of the impact of family structure and family formation on the social and economic lives of men and women.

SOCY 444 Sociology of Children (3) Prerequisite: 6 credits of sociology or permission of department. Analysis of the changes in social institutions and daily life in countries making the transition from socialism to capitalism. Particular course emphasis is on differences in work, household work and free time activities by gender, age and ethnic groups — and on historical, cultural and political differences across republics in the former Soviet Union and its satellites.

SOCY 447 Small Group Analysis (3) Prerequisite: SOCY 201 or equivalent or permission of department. Analysis of small group dynamics and social structure. Repeatable to 6 credits if content differs. This is the special topics research course in Social Psychology.

SOCY 449 Social Measurement and Research Methods (3) Prerequisite: SOCY 202 and one course in Research Methods. Repeatable to 6 credits if content differs. The special topics research course in Social Psychology.

SOCY 450 Measurement of Time, Work, and Leisure (3) Prerequisite: 6 credits of sociology or permission of department. Development of the economic and social roles of households in the United States. Factors contributing to work, housework, personal and free time activities. Time-use differences across methods, social groups and cultures. Survival and living conditions. A critical perspective on the management, societal quality of life, social policy, and theory.

SOCY 456 Sociology of Consumerism (3) Prerequisites: SOCY 203 and 3 additional credits of sociology or permission of department. Analysis of consumer behavior. Issues relating to consumerism. Among the issues to be explored are the changing nature of consumption, what we consume and why, the changing nature of consumption.

SOCY 457 Sociology of Law (3) Prerequisite: 6 credits of sociology or permission of department. Analysis of the American work world with special attention to the impact of the legal system. Analysis of the legal profession. Professionalization, career patterns, problems of minority groups and the future of work.

SOCY 462 Women in the Military (3) Prerequisite: 6 credits of sociology or permission of department. Cross-national analysis of military service, present, and future role of women in the military. Effects on women's roles in armed forces of cultural forces, national security, technological change, demographic change, and occupational structural roles. A critical perspective on the management, societal quality of life, social policy, and theory.

SOCY 463 Sociology of Combat (3) Prerequisite: 6 credits of sociology or permission of department. Sociological theories and concepts related to combat. Influence of historical events on the relations between nations and between the military and society. Effects of U.S. social structure on combat; effects of involvement in combat on social structure and on members of society. Cohesion and leadership in military units.

SOCY 464 Military Sociology (3) Prerequisite: 6 credits of sociology or permission of department. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

SOCY 465 The Sociology of War (3) Prerequisite: 6 credits of sociology or permission of department. The origin and development of armed conflict; the social causes of war and social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilizations.

SOCY 466 Sociology of Politics (3) Prerequisite: 6 credits of sociology or permission of department. An introduction to the sociology of political phenomena. Consideration of the basic concepts and major findings in the field; the relationship of the majority to other institutional orders of the society; the relationship of political activity in America to the theory of democracy.

SOCY 467 Sociology of Education (3) Prerequisite: 6 credits of sociology or permission of department. Sociological analysis of the educational process. The relationship of education to society, goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the social organization of the school and its functions, the roles and subcultures of teachers and students.

SOCY 474 Post-Soviet Societies (3) Prerequisite: 6 credits of sociology or permission of department. Analysis of the changes in social institutions and daily life in countries making the transition from socialism to capitalism. Particular course emphasis is on differences in work, household work and free time activities by gender, age and ethnic groups — and on historical, cultural and political differences across republics in the former Soviet Union and its satellites.

SOCY 498 Selected Topics in Sociology (1-3) Prerequisite: 6 credits of sociology or permission of department. Analysis of the changes in social institutions and daily life in countries making the transition from socialism to capitalism. Particular course emphasis is on differences in work, household work and free time activities by gender, age and ethnic groups — and on historical, cultural and political differences across republics in the former Soviet Union and its satellites.
SPAN — Spanish

The language of instruction in all courses is Spanish unless otherwise noted.

SPAN 101 Elementary Spanish I (4) Four hours of discussion/recitation per week. Prerequisite: No previous Spanish; Spanish I with grade of A or B; high school level 2 Spanish with a grade of C or below. Not open to native/fluent speakers of Spanish. Introduction to the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 102 Elementary Spanish II (4) Four hours of discussion/recitation per week. Prerequisite: SPAN 101 at UMCOP or equivalent. Not open to native/fluent speakers of Spanish. Further study of the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 103 Review of Elementary Spanish (4) Not open to students who have completed higher level Spanish language classes. An intensive beginning course in Spanish language skills: guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses.

SPAN 125 Spanish Civilization: From Kingdoms to Nationalities (3) Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history.

SPAN 201 Intermediate Spanish (4) Prerequisite: SPAN 102 or SPAN 103 at UMCOP or high school level 3 Spanish with a grade of A or B or high school level 4 Spanish with a C or below. Not open to native/fluent speakers of Spanish. Further study of the functions and structures of the Spanish language with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 202 Intermediate Grammar and Composition (3) Prerequisite: SPAN 201. An indepth study and analysis of selected grammatical topics with emphasis on composition, reading, and writing.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated (3) in the United States Prerequisite: native or near native knowledge of oral and written Spanish. Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history.

SPAN 207 Reading and Writing in Spanish (3) Prerequisites: SPAN 201. An indepth study and analysis of selected grammatical topics with emphasis on composition, reading, and writing.

SPAN 208 Advanced Conversation I (3) Prerequisite: SPAN 202. Recommended: SPAN 207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

SPAN 301 Advanced Grammar and Composition I (3) Prerequisite: SPAN 202. Recommended: SPAN 207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

SPAN 302 Advanced Grammar and Composition II (3) Prerequisite: SPAN 301. Practice in writing of different types of compositions and essays, including narrations, descriptions, and expository writing. Review of problematic syntactical structures.

SPAN 306 Spanish II for Native Speakers (3) Prerequisites: SPAN 206. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted. Designed for Spanish speakers educated in English.

SPAN 310 Spanish Phonetics (3) Prerequisite: SPAN 202 or permission of department. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention to sentence phonetics; juncture, rhythm, stress, pitch.

SPAN 311 Advanced Conversation I (3) Prerequisite: SPAN 202 or SPAN 211 or permission of department. Not open to native/fluent speakers of Spanish. Further development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 312 Advanced Conversation II (3) Prerequisites: SPAN 202 and SPAN 211 or permission of department. Not open to native/fluent speakers of Spanish. Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 314 Daily Life in Mexico: An Intercultural Approach (1) for students in UMS Study Abroad program in Mexico City. Cultural differences between life in the United States and Mexico.

SPAN 315 Commercial Spanish I (3) Prerequisite: SPAN 301 or permission of department. Business Spanish terminology, vocabulary and practice. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial texts. May include exposure to Spanish business environments.

SPAN 316 Practicum in Translation I (3) Prerequisite: SPAN 301 and permission of department. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 317 Translation II (3) Prerequisite: SPAN 316. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 318 Translation of Technical Texts (3) Prerequisites: SPAN 317. Repeatable to 6 credits if content differs. Translation of technical and specialized texts in various fields (e.g. medicine, law, social work, journalism, technology) into Spanish and/or English.

SPAN 321 Survey of Spanish Literature I (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Spanish literature from the 12th through the 17th century.

SPAN 322 Survey of Spanish Literature II (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Spanish literature from the 18th century to the present.

SPAN 323 Survey of Latin-American Literature I (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Latin American literature from the pre-Columbian era through the 18th century.

SPAN 324 Survey of Latin-American Literature II (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Latin American literature from the 19th century to the present.

SPAN 325 Spanish Civilization I (3) Prerequisite: SPAN 301 or permission of department. Spanish civilization from the pre-Spanish cultures through the Spanish golden age with emphasis on social, cultural, and artistic aspects.

SPAN 326 Spanish Civilization II (3) Prerequisite: SPAN 301 or permission of department. Spanish civilization from the 18th century to the present day with emphasis on social, cultural, and artistic aspects.

SPAN 346 Latin American Civilization I (3) Prerequisite: SPAN 301 or permission of department. Cultural heritage of the Latin American peoples from the pre-Columbian period to independence.

SPAN 347 Latin American Civilization II (3) Prerequisite: SPAN 301 or permission of department. Cultural heritage of the Latin American peoples from independence to the present.

SPAN 356 Literary Translation I (3) Prerequisite: SPAN 317 or permission of department. Translation of literary texts into Spanish and/or English: narrative.

SPAN 357 Literary Translation II (3) Prerequisite: SPAN 317 or permission of department. A continuation of SPAN 356. Translation of literary texts into Spanish and/or English: dialogue and other forms.

SPAN 388 Language House Spring Colloquium (1) Prerequisite: Residence in Language House. Repeatable to 8 credits if content differs. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

SPAN 399 Independent Study in Spanish (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Specific readings, in literature or a translation project under the supervision of a faculty member of the department.

SPAN 401 Advanced Composition I (3) Prerequisite: SPAN 302 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 402 Advanced Composition II (3) Prerequisite: SPAN 401 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 403 Research and Information Sources in Latin American Studies (3) Prerequisite: Associate Degree or higher. Corequisite: SPAN 458: Recommended: SPAN 234 and SPAN 235. 86 semester hours. Senior standing. Also offered as LAT 403. A foundational course in Latin American Studies researcher. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

SPAN 408 Great Themes of the Hispanic Literatures (3) Prerequisite: SPAN 301 or permission of department. Current thematic issues in Spanish-American literary history. Each theme will be announced when the course is offered.

SPAN 409 Great Themes of the Hispanic Literatures (3) Prerequisite: SPAN 301 or permission of department. Current thematic issues in Spanish-American literary history. Each theme will be announced when the course is offered.

SPAN 410 Literature of the Middle Ages (3) Prerequisite: SPAN 317 or permission of department. Translation of representative texts. This course covers from 700 to the year 1350.

SPAN 411 Literature of the Middle Ages (3) Prerequisite: SPAN 317 or permission of department. Translation of representative texts. This course covers from 1350 to 1500.

SPAN 413 Libro de Buen Amor (3) Literary traditions in the Libro de buen amor.

SPAN 414 La Celestina (3) Literary and cultural traditions in La Celestina.

SPAN 415 Commercial Spanish II (3) Prerequisite: SPAN 317 or permission of department. Further development of intermediate level Spanish. Further development of intermediate level Spanish. Further development of intermediate level Spanish.
THET 182 Stage Makeup (2) Credit will be granted for only one of the following: THET 182 or THET 185. Formerly THET 185.

THET 171 Theatre Craft II (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: THET 110 and THET 120. Credit will be granted for only one of the following: THET 371 or THET 375. Formerly THET 375. A study of design theory and style. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 279 Theatre Workshop I (1) One hour of laboratory per week. Prerequisite: THET 170. Credit will be granted for only one of the following: THET 279 or THET 487. Study and practical experience in garment construction and related costume arts as used in theatre production. Flat pattern development, corset construction, theatrical sewing techniques and organization of the costume construction process.

THET 290 American Theatre 1750 to 1890 (3) Formerly THET 310. Tracing the evolution of the American theatre from the beginning, through the establishment of the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture.

THET 291 American Theatre 1890-Present (3) Formerly THET 310. Tracing the evolution of the American theatre during the twentieth century, this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture of today.

THET 310 Fundamentals of Stage Design (3) Prerequisite: THET 111 and THET 170. Survey of scenic, lighting, sound, and costume design fundamentals.

THET 320 Acting II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET 110 or permission of department. Basic principles of acting techniques. Exercises structured to develop students' concentration, imagination, sense and emotional memory. Textual analysis, character analysis and scene study; and the application of these techniques to character portrayal through performance of given acting exercises.

THET 330 Play Directing I (3) Prerequisites: THET 111 and THET 120 and permission of department. A lecture-laboratory course dealing with the techniques of coordination, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

THET 341 Screenwriting I (3) One hour of lecture and two hours of discussion/recitation per week. Prerequisite: junior English. Introduction to screenwriting, emphasizing visual literacy necessary for effective television and film writing.

THET 350 American Musical Comedy (3) The evolution of musical comedy through to the musicals of the 1920's and 1930's. Emphasis on sociopolitical context, thematic thrust, issues and styles, the aesthetic reflected in the work, impact on American and general theatre audiences.

THET 371 Scenic Design I (3) Prerequisites: THET 110, THET 111, THET 170 and THET 273 or permission of department. Credit will be granted for only one of the following: THET 371 or THET 375. Formerly THET 375. A study of design theory and style. Methods and approaches of coordination on all elements of scenic design for theatre.

THET 372 Stage Property Design (3) Prerequisite: THET 170 and THET 173 or permission of department. Credit will be granted for only one of the following: THET 372 or THET 484. Formerly THET 484. Study in the techniques and tools of drawing and painting. The course is designed for the student to develop rendering and drawing skills for theatrical design presentation.

THET 375 Lighting Design I (3) Prerequisite: THET 110, THET 170 and THET 273 or permission of department. Credit will be granted for only one of the following: THET 373 or THET 476. A study of the theories of electricity, instruments, design, color, and control for the stage. Practical work on productions.

THET 383 Costume Design I (3) Prerequisites: THET 110, THET 111, THET 171 and THET 373 or permission of department. Credit will be granted for only one of the following: THET 383 or THET 480. Formerly THET 488. Basic principles of costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 384 Stage Costume Construction II (3) Prerequisite: THET 284 or permission of department. Credit will be granted for only one of the following: THET 384 or THET 487. Formerly THET 487. Study and practical experience in construction of stage costumes, props and accessories. Pattern development by draping, millinery, crafts and pattern developing through draping.

THET 386 Experiential Learning (3) Prerequisite: permission of department. 56 semester hours.

THET 387 Fundamentals of Theatre Design (3) Prerequisites: THET 330 and THET 111; or permission of department. Recommended: THET 170, THET 171. Survey of costume, lighting, scenery, and sound design fundamentals.

THET 390 Clothing and Culture (3) Formerly THET 245. The development of the costumes of dress, including Greek, Roman, Early European, Middle Eastern, Far Eastern, and African costume. Emphasis on clothing as an expression of culture and as an indicator of cultural change.

THET 420 Acting III (3) Prerequisites: THET 221 and THET 320 and permission of department. Exploration and application of the techniques necessary for the preparation and performance of Shakespeare and other drama.

THET 421 Movement for Actors (3) Prerequisite: permission of department. Studies and intensive exercises to aid the actor in understanding physical and emotional energy flow, body placement, alignment and body image. The physical aspects of character.

THET 425 Acting IV, Advanced Scene Study (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: THET 420 and THET 424. By permission of department. Course seeks to bring together the work of previous performance courses and help the student discover a personal process in creating character in various genres of plays.

THET 429 Actor's Studio (2-3) Prerequisite: permission of department. Development of the actor's craft through dramatic role execution under faculty supervision in the actor's development. Eligible students must make commitments to plan and pace the course under the instructor's direction pre-registration.

THET 430 Play Direction II (3) Prerequisite: THET 330 or permission of department. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

THET 441 Screenwriting for TV and Film (3) One hour of lecture and three hours of discussion/recitation per week. Prerequisite: THET 341. Not open to students who have completed RTVF 427/627 or RTVF 428/627. Advanced workshop and seminar for students completing feature length screenplays in Screenwriting I.
THET 452 Musical Theatre Workshop II (3) Prerequisite: THET 110 and THET 111 or permission of department. Practical tools of theatre management: production philosophies, selecting and balancing a season, tickets and operations, budgeting, graphic arts production, advertising, publicity and other promotional devices.

THET 460 Theatre Management I (3) Prerequisites: THET 110 and THET 111 or permission of department. The practical tools of theatre management: production philosophies, selecting and balancing a season, tickets and operations, budgeting, graphic arts production, advertising, publicity and other promotional devices.

THET 461 Theatre Management II (3) Prerequisites: THET 110 THET 111 and THET 460; or permission of department. Case studies, discussions, lectures and projects concerning advanced theatre management techniques and administration, including such areas as personnel relations, contract negotiations, theatrical unions, fund raising, touring, audience development, and marketing.

THET 471 Scenic Design II (3) Prerequisite: THET 375 and permission of department. Study of styles and techniques in scenic design. Emphasis on individual projects and multi-use theatres.

THET 472 Scene Painting (3) Prerequisites: THET 170 or permission of department. Introduction to painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional projects.

THET 473 Scene Painting (3) Prerequisite: THET 170 or permission of department. Advanced painting techniques and materials. Three-dimensional realistic scenery and nonrealistic two-dimensional projects.

THET 474 Stage Management (3) Prerequisite: permission of department. Intensive practical study of the techniques and procedures of stage management.

THET 475 Period Style for the Theatre: Fashion and Decor (3) Prerequisites: THET 170 and permission of department. A study of environmental decor, historic ornament and fashion through the ages and their practical application for theatrical production.

THET 476 Lighting Design I (3) Prerequisite: THET 273 or permission of department. A study of the theories of electification, instruments, design, color, and control for the stage. Practical work on productions.

THET 477 Lighting Design II (3) Prerequisites: THET 476; and permission of department. Advanced projects in lighting design. Theoretical and practical intensive study of script analysis and design process.

THET 479 Theatre Workshop II (3-12) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Supervising student work in the areas of scenic design, properties, costume or wardrobe, lighting, technical theatre, stage management, and sound.

THET 481 Stage Costume History and Design II (3) One hour of lecture and six hours of laboratory per week. Prerequisites: THET 273 and THET 480; or permission of department. An advanced course in costume design and interpretation leading to understanding and facility in design of stylized productions. Emphasis on design for musical comedy, dance theatre, opera and various non-traditional forms of theatre production.

THET 484 Rendering for the Theatre (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Study in rendering techniques and graphics skills for theatrical design presentation. The course is designed for the student to develop rendering and drawing skills which will result in a portfolio of their work for presentation.

THET 490 Theatre History I (3) Prerequisites: THET 110 and THET 111. The history of western theatre from its origins in classical antiquity through the mid-seventeenth century with emphasis on plays, playwrights, architecture, costume, decor, acting and costuming, and significant individuals. Extensive use of graphic materials, play readings, and production projects.

THET 491 Theatre History II (3) Prerequisite: THET 110, THET 111, and THET 490; or permission of department. The history of western theatre from the late seventeenth century to the late nineteenth century, with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings, and production projects.

THET 492 History of Theatre: Late Nineteenth Century to the Present (3) Prerequisite: THET 111 or permission of department. Trends in drama and theatrical production from Ibsen to the present.

THET 495 History of Theatrical Theory and Criticism (3) The history of the development of the ability to move, act and express through the media of lyric and music from the integrated musicals of the 1960's through the development of concert and rock/pop musicals.

THET 496 American African Women Filmmakers (3) Also offered as WMST 496. Credit will be granted for only one of the following: THET 496 or WMST 496. Examines the cinematic artistry of African American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

THET 497 Non-Traditional Theatre (3) Prerequisite: permission of department. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.

UMEI — Maryland English Institute

UMEI 001 English as a Foreign Language: Beginning (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Emphasis on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing. Three credits. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 002 English as a Foreign Language: Intermediate I (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 003 English as a Foreign Language: Intermediate II (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 004 English as a Foreign Language: Intermediate III (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading comprehension, basic academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 005 Advanced English as a Foreign Language (6) 12 hours of discussion/recitation per week. Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 006 English Pronunciation (2) Three hours of discussion/recitation per week. Individualized class for the non-native speaker of English. Diagnosis of individual pronunciation problems. Practice in the correct pronunciation of English sounds and improvement of ability to speak English with proper stress and intonation. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 007 Advanced Writing for International Students (3) Four hours of discussion/recitation per week. Open to graduate students only. Special fee required for the course for the non-native speaker of English with a good command of spoken English. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 008 Advanced Oral Communication Skills (2) Four hours of discussion/recitation per week. Permission of department. For advanced non-native speakers of English. Practice in speaking skills relevant to the academic setting. Emphasis on involvement of each student in the classroom. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UNIV — University/World Courses

UNIV 099 Internship Seminar (1) Prerequisite: Minimum 2.0 GPA (undergraduates), 3.0 GPA (graduate students); approval of Career Center. Approval of instructor. Complements the supervised work experiences. Open to all majors; all class levels. Involves exploring career options, developing professional work skills, examining the relationship between internship and academic coursework. Course may be repeated.

UNIV 100 The Student in the University (1) Two hours of lecture per week for 12 weeks. Open to students who have completed EDCP 1080. Credit will be granted for only one of the following: EDCP 1080 or UNIV 100. Introduces students to University life. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Study skills, career decision-making, and student development processes will be explored.

UNIV 101 The Student in the University and Introduction to University Resources (3) Required of all first-year students. Introduces students to University life and current computer resources. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Focus on the rapid advances available to them. Additionally students will explore current databases both internal and external to the University, and how to utilize the World Wide Web as a research tool.

UNIV 108 Markets and Society Colloquium (1) Restricted to students in the Markets and Society program. Provides students with information about the world of business careers. Students hear from a variety of guest speakers, including faculty from different programs and professional guests. Students engage in the career exploration process, including self-assessment, information gathering, decision making, and goal setting. Restricted to students in the Markets and Society program.

UNIV 118 Topics in Creativity (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. Interdisciplinary course team taught by faculty from different disciplines. Study of great creative works and creative personalities in a variety of fields. The fields included may vary from semester to semester.

UNIV 128 Topics in Contemporary Science (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. Interdisciplinary course team taught by faculty from different disciplines. An intensive study of changes in the world of higher education, and in technological advances available to them. Additionally students will explore current databases both internal and external to the University, and how to utilize the World Wide Web as a research tool.

UNIV 138 Topics in the Environment (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. This intensive course is team taught by faculty from different disciplines. A comprehensive study of the major topics and issues of world importance.

UNIV 148 Topics in Cultural Perspectives (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. This intensive course is team taught by faculty from different disciplines. Comparative study of cultural perspectives across major topics and issues of world importance.

UNIV 158 Topics in Communication (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. This intensive course is team taught by faculty from different disciplines. Complementary study of communication and their roles in society.


URSP — Urban Studies and Planning

URSP 100 Challenge of the Cities (Formerly URBS 100). Contemporary urban patterns, trends and problems. Major urban issues such as: population change, urban sprawl, land use, housing, neighborhood development, fiscal and unemployment crises, and social, environmental, and political controversies of metropolitan areas. International urbanization patterns and policies.
URSP 320 Planning and the Contemporary City (3) Prerequisite: Approved Courses
A study of the planning and decision making processes in the United States city and the well being of its inhabitants. Emphasis on understanding ways of analyzing urban issues and evaluating alternative planning and policy options.

URSP 372 Diversity and the City (3) Exploration of the different social, economic, ethnic, and gender groups that live and work in cities, the historical background of differences, the impact of societal structures and group cultures, and how public and private policies do and can affect different groups.

URSP 399 Independent Study (1-3) Repeatable. Not for credit. Formerly URBS 399.
Directed research and study of selected aspects of urban affairs.

URSP 410 The Development of the American City (3) Prerequisite: permission of department. Formerly URSP 410.
History of urban policy and city planning in the U.S. Response to changing definitions of urban problems and political issues.

URSP 465 Urban Life and Change: International Perspective (3) Prerequisite: completion of two CORE Behavioral and Social Science courses.
An interdisciplinary course that explores the history and sociocultural significance of urban development in different countries and regions. The course examines the diversity and similarity in patterns of urbanization, urban life, and urban change throughout the world. Variation is explored among urban levels; special attention is given to urban areas in less industrialized countries.

URSP 488 Selected Topics in Urban Studies and Planning (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly URBS 488.
Topics of special interest to advanced urban studies students.

WMST — Women's Studies

WMST 200 Introduction to Women's Studies: Women and Society (3) An interdisciplinary study of the status, roles, and experiences of women in society. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

WMST 210 Women in America to 1880 (3) Also offered as HIST 210. Credit will be granted for only one of the following: WMST 210 or HIST 210.
An examination of women's creative powers as a basis for understanding women's roles in the American frontier colony from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

WMST 211 Women in America Since 1880 (3) Also offered as HIST 211. Credit will be granted for only one of the following: WMST 211 or HIST 211.
An analysis of the economic, family, and political roles of colonial, slave, immigrant and frontier women in America from preindustrial colonial period through the early stages of nineteenth century industrialization and urbanization.

WMST 212 Women in Western Europe 1750-Present (3) Also offered as HIST 212. Credit will be granted for only one of the following: WMST 212 or HIST 212.
A study of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

WMST 241 Women Writers of French Expression in Transatlantic Literature (3) Credit will be granted for only one of the following: WMST 241 or FREN 241.
Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean, and France. Taught in English.

WMST 250 Introduction to Women's Studies: Women, Art and Culture (3) An examination of women's creative powers as expressed in selected examples of music, film, art, drama, poetry, fiction, and other literature. Explores women's creativity in relation to content, style, and form.

WMST 255 Introduction to Literature by Women (3) Also offered as ENGL 250. Credit will be granted for only one of the following: WMST 255 or ENGL 250.
Images of women in literature by and about women.

WMST 275 World Literature by Women (3) Also offered as CMLT 275. Credit will be granted for only one of the following: WMST 275 or CMLT 275.
Comparative study of selected works by women writers of several countries, exploring the intersection and divergence in women's literary representations.

WMST 281 Women in German Literature and Society (3) Also offered as GER 281. Credit will be granted for only one of the following: WMST 281 or GER 281.
A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

WMST 298 Special Topics in Women's Studies (1-3) Repeatable to 6 credits if content differs.

WMST 300 Feminist Reconceptualizations of Knowledge (3) Prerequisite: WMST 212, WMST 241, WMST 281, or WMST 291. Credit will be granted for only one of the following: WMST 300 or WMST 301 or WMST 302 or WMST 303.
An examination of how the interdisciplinary study of women and gender has generated new questions, challenged traditional methodologies of inquiry, and raised new critical issues. Emphasis will be placed on the question of how we can best come to learn, know, and teach. Explores the impact of feminist thinking on various disciplines.

WMST 313 Women and Science (3) Prerequisite: one science course. Credit will be granted for only one of the following: WMST 313 or ZOOL 313.
An analysis of and in contribution to women's sciences. Emphasis on selfimagings and societal expectations on women's participation, intersection of scholarship with science.

WMST 320 Women in Classical Antiquity (3) Also offered as CLAS 320. Credit will be granted for only one of the following: WMST 320 or CLAS 320.
A study of women's image and reality in ancient Greek and Romans society through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis in women's role in the family, views of family, imagery and women's image in ancient and modern society. Readings in primary sources in translation and modern critical writings.

WMST 325 The Sociology of Gender (3) Prerequisite: 3 credits of sociology. Also offered as SOCY 325. Credit will be granted for only one of the following: WMST 325 or SOCY 325.

WMST 326 Biology of Reproduction (3) Prerequisite: BSCI 105 or permission of department. Also offered as BSCI 342. Credit will be granted for only one of the following: WMST 326 or BSCI 342.
The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperms, ovulation, sexual differentiation, pregnancy, lactation, maternal behavior and menopause.

WMST 336 Psychology of Women (3) Prerequisite: PSYC 100. Also offered as PSYC 336. Credit will be granted for only one of the following: WMST 336 or PSYC 336.
A study of the biology, life span development, socialization, personality, mental health, and special issues of women.

WMST 348 Literary Works by Women (3) Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Repeatable to 6 credits if content differs. Formerly WMST 348.
An interdisciplinary course in the study of women's roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and the issue of involvement in political and social struggles, including those for women's rights, birth control, and civil rights.

WMST 452 Women in the Media (3) Also offered as JOUR 452. Credit will be granted for only one of the following: WMST 452 or JOUR 452.
Participation and portrayal of women in the mass media from colonial to contemporary times.

WMST 453 Victorian Women in England, France, and the United States (3) Also offered as HIST 493. Credit will be granted for only one of the following: WMST 453 or HIST 493.
An examination of the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards and sexual orientation.

WMST 454 Women in Africa (3) Also offered as HIST 494. Credit will be granted for only one of the following: HIST 494 or WMST 454.
The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child rearing; ritual markers in women's lives; women in the workplace; women's associations; women's health issues; measures designed to control women's behavior; women and development.

WMST 455 Women in Medieval Culture and Society (3) Also offered as HIST 495. Credit will be granted for only one of the following: HIST 495 or WMST 455.
Medieval women's identity and roles: the condition of women in medieval society; women's access to power; a study of women's writings and the constraints of social constructivism on the female historical voice; and contemporary assumptions about women.

WMST 457 Redefining Gender in the U.S., 1880-1935 (3) Also offered as HIST 493. Credit will be granted for only one of the following: WMST 457 or England 493.
An examination of changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day to day lives of men and women.

WMST 458 Literature by Women After 1800 (3) Prerequisite: WMST 408. Credit will be granted for only one of the following: WMST 458 or ENGL 458.
Literary courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL 458.

WMST 466 Feminist Perspectives on Women in Art (3) Also offered as ARTH 466. Credit will be granted for only one of the following: WMST 466 or ARTH 466.
Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

WMST 475 Women of the African Diaspora (3) Also offered as ARTH 475. Credit will be granted for only one of the following: WMST 475 or ARTH 475.
A study of the intellectual traditions to which they relate.
WMST 468 Feminist Cultural Studies (3) Repeatable to 9 credits if content differs. Each version of this course focuses on one or several forms of popular culture — such as TV, music, film, cyberculture, or genre fiction (for example, science fiction) — and demonstrates how feminists value, critique and explain such forms. Tools of feminist cultural studies include economic and social analyses of power, race, sexuality, gender, class, nationality, religion, technology, and globalization processes.

WMST 471 Women's Health (3) Also offered as HLTH 471. Credit will be granted for only one of the following: WMST 471 or HLTH 471. The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.

WMST 488 Senior Seminar (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Seminar for advanced majors in women's studies or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

WMST 492 History of the American Sportswoman: Institutions and Issues (3) Prerequisite: KNES 293. Also offered as KNES 492. Credit will be granted for only one of the following: WMST 492 or KNES 492. Women's involvement in and contributions to America's sporting culture, especially in the 19th and 20th centuries. Pursued in depth are the interactions among historical perceptions of women's bodies, women's roles, responsibilities, and potential and their sporting lives. Also the effects of role stereotyping and opportunities for and directions taken in developing sport organizations, and other issues affecting women's involvement in institutional sport. Examines gender as a system of relations in the sport nexus.

WMST 493 Jewish Women in International Perspective (3) Prerequisite: one course in Women's Studies, preferably WMST 200 or WMST 250. Also offered as JWST 493. Credit will be granted for only one of the following: WMST 493 or JWST 493. Using memoirs, essays, poetry, short stories, films, music and the visual arts, course will interrogate what it means/has meant to define oneself as a Jewish woman across lines of difference. Focus is largely on the secular dimensions of Jewish women's lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspective will be international, including Ashkenazi and Sephardi women.

WMST 494 Lesbian Communities and Differences (3) Prerequisite: one course in Women's Studies, preferably WMST 200 or WMST 250. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

WMST 496 African-American Women Filmmakers (3) Also offered as THET 496. Credit will be granted for only one of the following: WMST 496 or THET 496. Examines the cinematic artistry of African American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

WMST 498 Advanced Special Topics in Women's Studies (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs.

WMST 499 Independent Study (1-3) Prerequisite: one course in women's studies courses and permission of department. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Department.